PENCIL POINTS

Not a Penny for Repairs in

47 YEARS

Record of copper cresting on Home Life Insurance Building leads to re-roofing with 20-oz. Anaconda Copper . . . and a saving of 25 tons in weight!

When horse-cars labored down Broadway and "Gentleman Jim" Corbett wore the heavyweight crown, a new building reared its copper crest along Manhattan's budding skyline; the year, 1893. Since then, not one cent has been expended for repairs to the copper cresting. Such a record naturally led to the choice of copper to replace the old tile roof.

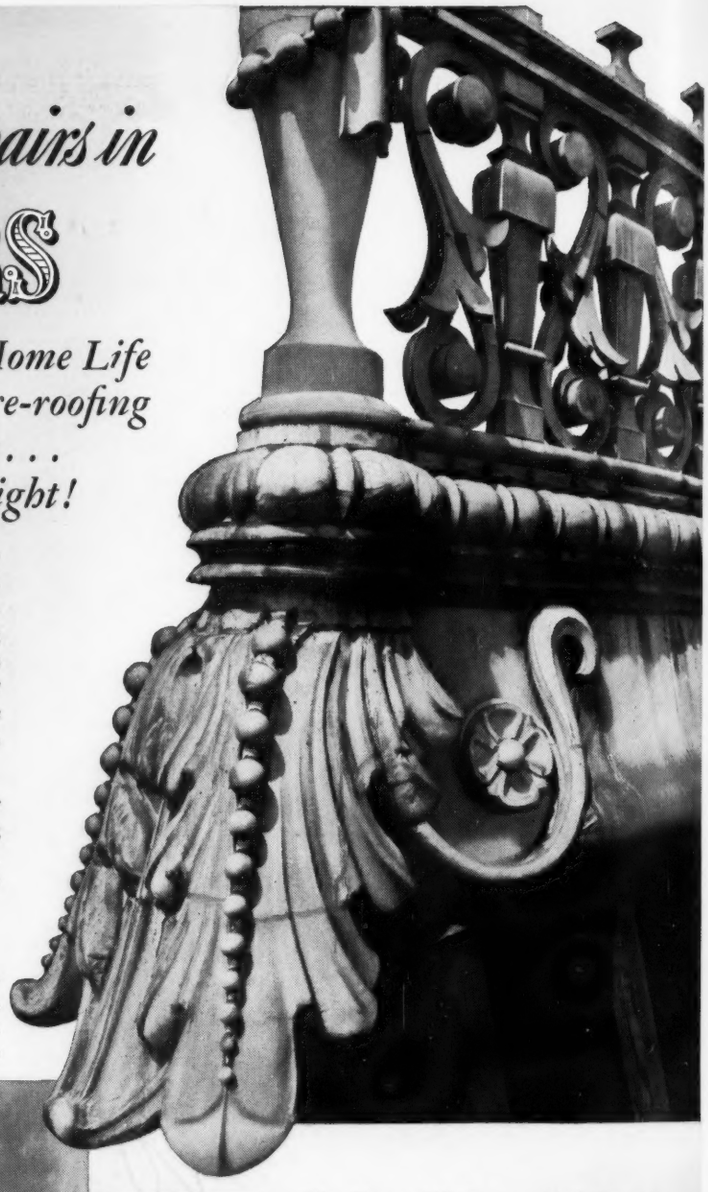
Unique Installation

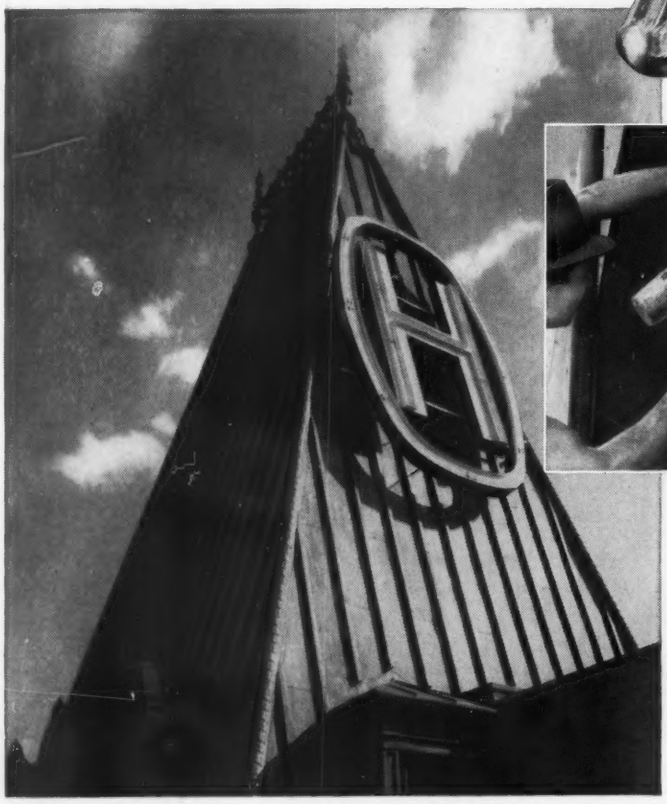
Interesting is the fact that not a bit of solder was used in installing the new copper roof; also that Nicholson & Galloway, Inc., did both the cresting job in 1893 and the new batten-seam roof in 1940!

Specify Anaconda Copper

You can't go wrong with Anaconda Copper. Specify it for light weight, good appearance, durability. In the long run, it saves money.

4044





The Home Life Insurance Company, now in its 81st year, built New York's first fire-proof, all-steel constructed building in 1893—at 256 Broadway. The original copper cresting is still in good condition after 47 years of rain, sleet, snow and burning sunshine.

(At left) 20-oz. crimped Anaconda Copper batten-seam roof recently installed without solder on this roof by Nicholson & Galloway, Inc., New York. The architect was Samuel R. Bishop, New York.

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THE THRESHING FLOOR

EDITOR'S NOTE — *In reading these comments prepared by Dr. A. D. Taylor, Landscape Architect and Town Planner, of Cleveland, Ohio, it may be necessary to refer to similar notes contained in the September and October issues of* PENCIL POINTS.

Dr. Taylor is President of the American Society of Landscape Architects, and he has assisted us in obtaining the chart over-page, prepared by the Washington Chapter of the A.S.L.A. under his direction.

MUCH valuable information for those specifically interested in the Defense Program is being released through the agencies to which reference has been made in reports heretofore published. To this list of sources of information should be added the following:

Federal Works Agency, Washington, D. C., for releases containing information on defense housing being administered by the Public Buildings Administration—one of the agencies functioning under the Federal Works Administrator.

The list of army projects, the development of which is under the Construction Division of the Quartermaster General's office, is rapidly increasing. These major construction projects approximate between 45 and 50 in number, and include approximately 30 cantonments and similar developments for troop housing. Major defense projects, other than those for troop housing, include approximately 11 extensive plants for production of powder, production of high explosives, ammunition loading plants, and ammonia producing plants. Some of the large powder plants and ammunition loading plants cover thousands of acres. Information concerning the kinds of projects and the location of projects with the approximate expenditures involved in the development of each project, is available through the office in charge of "Releases" in the Construction Division of the Quartermaster General's office, and in the releases published by the National Defense Council.

Engineers and architects are employed on a cost-plus-a-fixed-fee basis to provide the necessary technical planning services on these major projects, in which to date, because of the nature of the work involved on the projects, the profession of engineering seems to have been given a major part of the employment.

The Quartermaster General's office has quite properly recognized the value of the services of landscape architects and town planners, who are now being employed on most of these projects. Members of this technical planning profession have been employed on a consulting per diem basis.

The Lanham Bill (H.R. 10412) "to expedite the provisions of housing in connection with national defense, and for other purposes," was passed and finally approved on October 14, 1940. This bill makes available the sum of 150 million dollars to be expended through the Federal Works Administrator.

The major portion of this defense housing will probably be done through the agency of the Public Buildings Administration (in the Supervising Architect's Office). It is the opinion of the technical planning professions, as expressed in a joint statement presented to the Federal Works Administrator, that in the interests of speed and efficiency so essential to the design and construction of defense housing projects, representatives of these technical planning professions in private practice, should be employed on a proper form of fee basis to collaborate in furnishing the design services and the supervision of construction.

It is the opinion of those who have had extensive experience in this type of housing, that this program should be administered on a decentralized basis, using to the maximum extent the services procurable in the private offices of architects, engineers and landscape architects located within the immediate areas where housing projects are to be developed, in much the same way that the U.S.H.A. through the local housing authorities has availed itself of the services of these technical planning professions in low rent housing to date.

A list of approximately 70 of these defense housing projects, made necessary in the army expansion program, has been released through the Federal Works Agency office. These projects will average 200 units in each project and some of the projects in the list released to date include 500 to 600 units. Much of this housing is proposed to be in 4-family and 8-family two-story apartments in order to economize on cost of roads, walks and utilities.

An excellent statement by the Defense Housing Coordinator is found in a release (PR 146 dated October 5, 1940, procurable through the office of the National Defense Council).

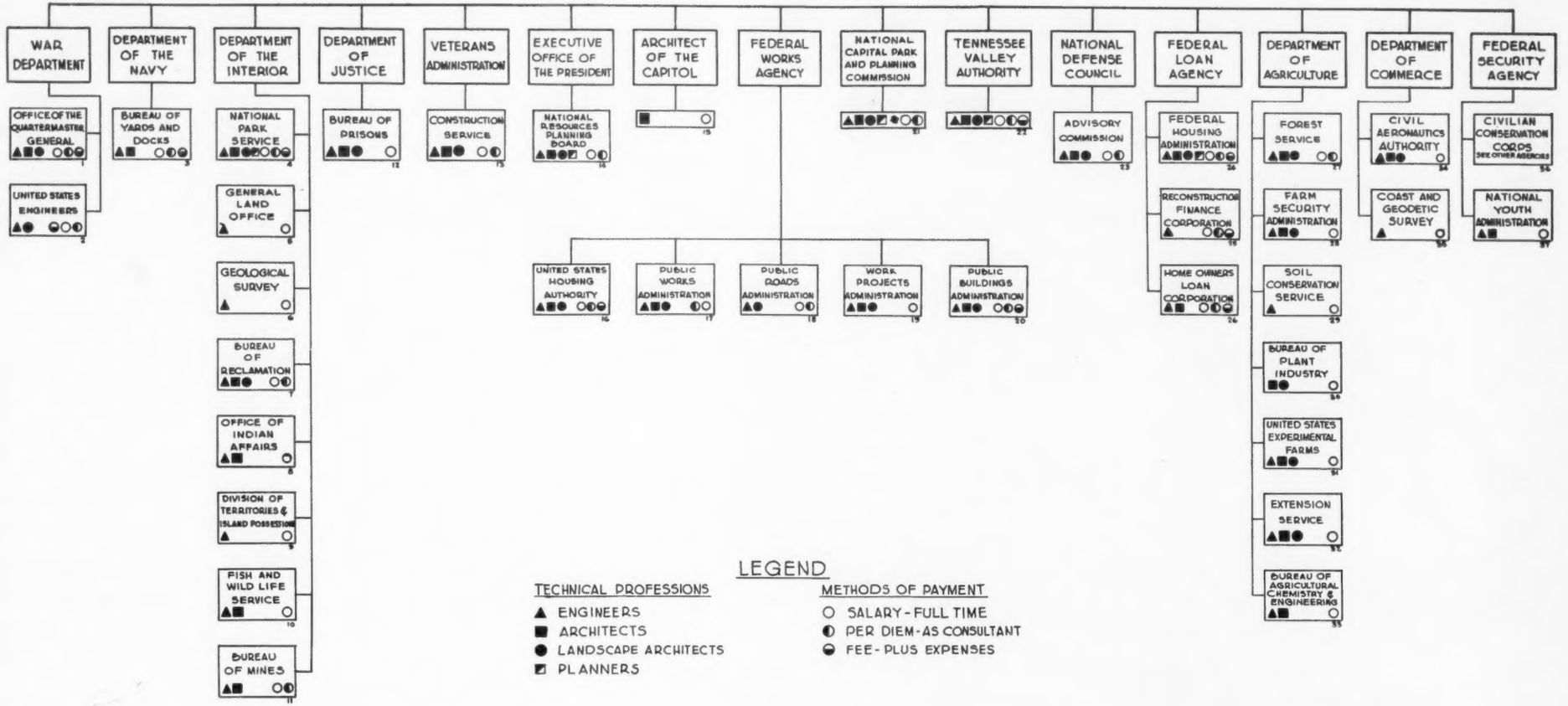
In the Navy Department there exists a housing section under the Bureau of Yards and Docks, employing engineers and architects on a salary basis, to prepare the necessary plans and to supervise the construction on housing for the Navy. It is reported that the housing units in the Navy will approximate in cost, from $2,800.00 to $3,500.00. Under the present national program, it is estimated that 30,000 units will be required. It is understood that one large housing project, approximating 3,500 units, located on the West Coast, will be done through the Public Buildings Administration.

Press releases are available on the list of Navy defense projects, including housing projects for the Navy.

A. D. TAYLOR

Washington, Oct. 20, 1940

FEDERAL AGENCIES CONCERNED WITH THE DISTRIBUTION OF FUNDS AFFECTING THE TECHNICAL PLANNING PROFESSIONS



FOR DETAILED CHARTS OF INDIVIDUAL AGENCIES AND STATEMENTS OF THEIR FUNCTIONS REFER TO THE UNITED STATES GOVERNMENT MANUAL.

COMPILED BY
THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS
THROUGH THE WASHINGTON D.C. CHAPTER

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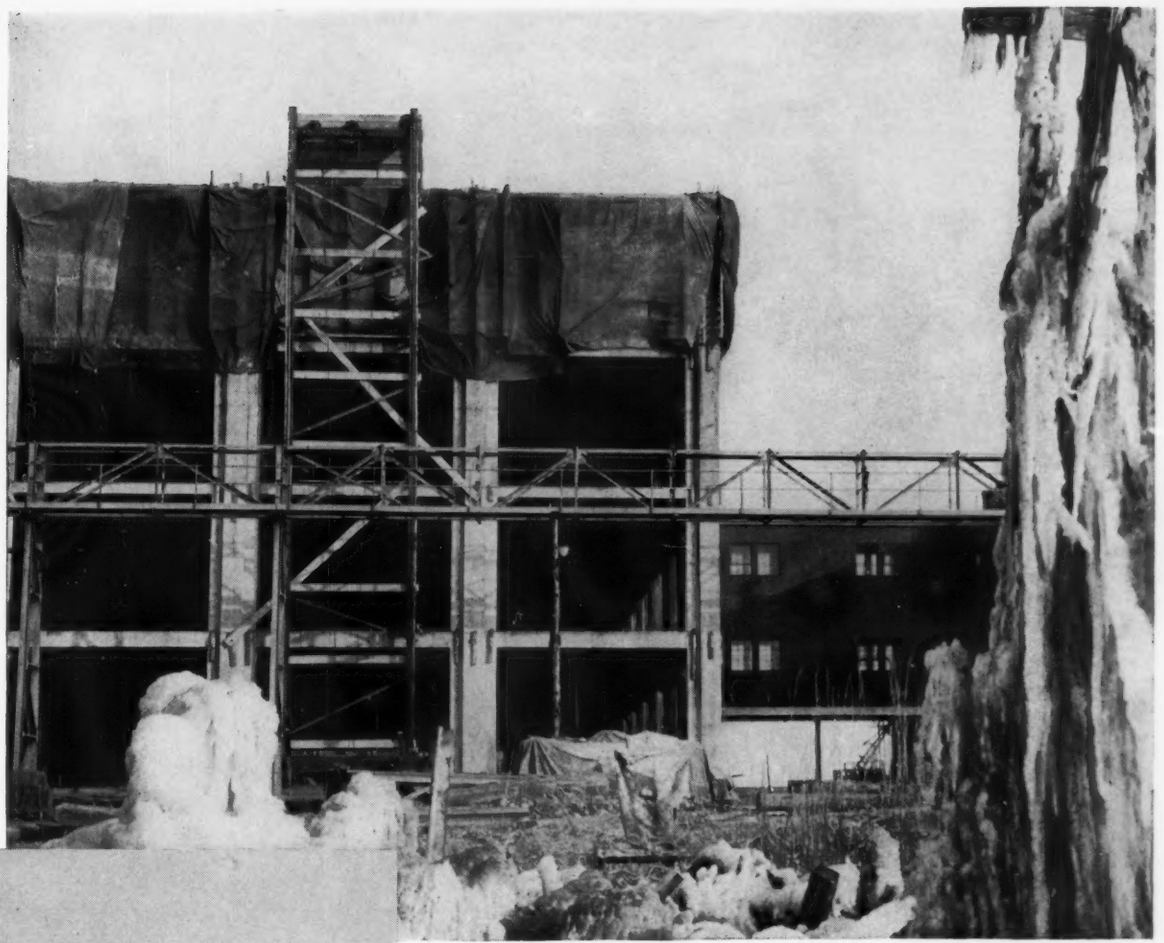
NOVEMBER 1940



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WILLIAM ORR LUDLOW, *Architect, of Madison, New Jersey, feels that members of the profession should anticipate drastic changes—and prepare themselves. He asks our readers:*

WHAT ARE architects and architectural draftsmen going to do in the coming months? Should they be preparing themselves for changed conditions? It is pretty hard to guess what may happen from day to day, but there are a few things that seem fairly certain, and perhaps there are a few things we might be doing to prepare.

To get ready to defend this country a great number of new enterprises have been started, and many of these require buildings of various kinds and buildings must be planned by somebody. How many of these will be planned by independent architects is hard to say, but already a number of contracts have been so signed. In the last war a considerable number were so planned, but it seems certain that now, as then, many buildings will be planned by the Army and Navy, or governmental agencies. But that these must expand their corps to many times their present dimensions, and that they will employ thousands of draftsmen, superintendents and specification writers is certain.

What kind of men are they going to select? Obviously the men they will employ first will be draftsmen, superintendents and specification writers who have knowledge of the kind of buildings required—presumably housing in cottage groups, apartments for families and dormitories for workmen; hospitals, churches, schools, assembly halls. There will be required also, new factories, additions and alterations to existing factories, hangars, and the like.

What about private work? What is the outlook? With the sentiment of the country so overwhelmingly in favor of our keeping out of war, certain kinds of work seem probable. It is true that when we were actively engaged in the last war, building for private purposes costing over $5000 was discouraged; but before we went in, in 1914, 1915, 1916, there was considerable of this kind of construction.

Private work requires principally two things—the necessity or the desirability of building, and the money available to do building. As to the necessity — at the present time the conditions seem to be better than they were in 1914, 1915, 1916, the country, generally, is under-built due to nearly ten years of business stagnation. Recent reports to the Federal government show that some 200 cities are greatly in need of buildings of various kinds, particularly of housing.

As to available money—for many kinds of buildings the banks and insurance companies have more money than they know what to do with, and the F.H.A. which has made a great volume of building possible, is still a going concern, as shown by recent reports that during the last six months, there have been more government loans and government insured loans than at any previous time.

It is reasonable also to consider as a factor of the situation the probable effect of the spending of vast sums of money by hundreds of industries in the production of materials and commodities required for a big program of defense preparation. This money will go into wages, salaries and profits, it will move fast, and this will mean that more people will have more money to spend, some of which will go into building, in spite of inevitably higher taxes.

Then there are many people who have a little money to invest, and with the present possibility of owning one's home at no more than it costs to pay rent, they feel that stocks and bonds are intangible things of uncertain value, and that they had better put their money in a home, for lands and buildings, at least, cannot disappear.

I think if I were a draftsman, or had only a small architectural practise, I would immediately spend a great deal of time, studying from every available source, housing and heavy construction. The current architectural magazines are full of such information. I would also register with the Army and Navy and some building organizations that are likely to get government jobs, stating the kinds of work I was particularly fitted to do.

I would also find out what architectural firms have received contracts from the Government; and which are likely to get contracts, and make application for service. How to register and where to register, PENCIL POINTS, in its current issues, is telling in an extraordinarily helpful way. The offices of the A.I.A. at the Octagon in Washington has also collected information on this subject. I would read carefully all information released.

SPEAKING OF DEFENSE!

"Concentration of defense activity in a comparatively small number of firms will result in a sharp slump when emergency commissions finally cease. It is hoped that the work may be spread, within reasonable limits, so that each architect may be able to give his services without being called upon to increase his organization beyond a normally expected amount."

Gordon B. Kaufmann, A.I.A.
Los Angeles

"Apart from the position of the architect in the industrial picture there is a place for him by reason of his particular training and experience as an individual in military affairs . . . In the last war the personnel of the Camouflage Corps was largely recruited from architects, painters, and sculptors. *George Young, Jr.*, suggests that architects have in them the making of first class observers in the air service."

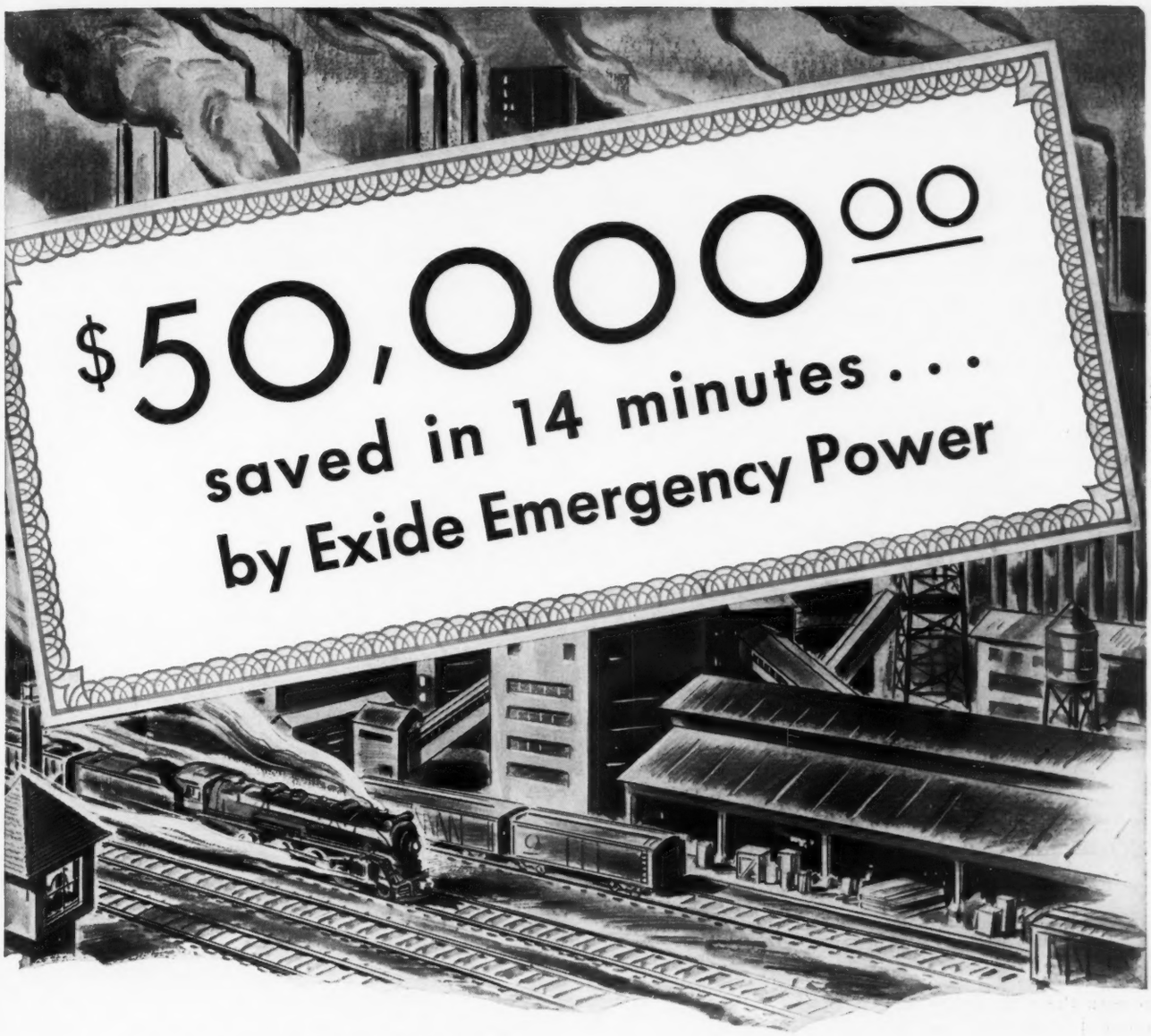
Clement R. Newkirk, A.I.A.
Utica, N. Y.

"Adoption of conscription as a National Defense measure has led many potential home builders, long indifferent to the European War, to believe that our participation in the war is not so improbable after all — and knowing that our entry in the war would result in rising prices, higher wages for skilled labor, increased rent, and a probable widespread scarcity of building material for private use, many who have delayed building are hurrying to escape extra costs by building at once."

E. W. Morrill, General Manager
Insulite Company

"Defense housing must be permanent if the Nation is to escape a heritage of slums and architectural eyesores. There is abroad the idea that this defense housing, because of the emergency, must be of the most temporary nature, and therefore is an opportunity for all sorts of trick ideas, among which are demountable houses, trailer camps, and such . . . There is great danger that the possibilities of the time will be lost in this sort of quackery."

Ralph Walker, F.A.I.A.
(At the New York State Association of Architects Convention)



. . . AMERICA'S DEFENSE INDUSTRIES NEED THIS SAME SURE PROTECTION

IN AMERICA'S defense program, many new industrial buildings need the adequate, unfailing protection of Exide Emergency Light and Power. Failure of the normal electric current supply can often mean far more than a plant tie-up lasting a few minutes or hours. It can result in damage to equipment that it may take months to replace.

For example—A large plate glass company suffered an electric power interruption, during which the Exide Emergency Battery carried the power load of about 720 amperes. The emergency lasted only 14 minutes, but plant officials estimate that more than $50,000 damage to their equipment would have resulted if they had been without such protection.

The utility companies take every precaution, but cannot control the effects of storms, floods, fires, or street accidents. Exide Emergency Units, supplying light or power, or both, operate *instantaneously* and *automatically* upon any interruption of the normal electric supply. They are easily and economically maintained by the normal staff of a plant.

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If you are working on a project that needs this unfailing protection, wire or write the nearest Exide Branch and an experienced Exide Field Engineer will call promptly to help with plans and specifications.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
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CRITICAL YOUTH WIELDS THE FLAIL

EDITOR'S NOTE—*Again we are indebted to a distinguished Architect for the following words of advice to students in the architectural schools.*

CREATING ARCHITECTS

IT IS useless perhaps in the present state of the world to suggest what may seem to be reactionary changes. We are living in the midst of a revolution, from which the arts have not escaped, and until the storm has spent itself there can be little hope of determining upon a steady course.

But since you have asked me for my point of view about the best method of approach to the practice of architecture, I suggest once more what I have always advocated; namely, a thorough study of the past. Today, in the pride of our new techniques and materials, the majority of our students feel that they have little to learn from what has been handed down by former masters. I am in entire sympathy with the new movement in architecture insofar as it is an attempt to rid ourselves of slavishly copying old examples to meet modern needs and an attempt to create a new and vital style; but this could be accomplished, I feel sure, more intelligently by a closer study of the principles of our art which have been fundamental in all periods. Children do not write until they have learned to form the letters of the alphabet. In later life their handwriting may become round or slanting—at times almost illegible—but there is always a certain likeness in the shape of the letters. The great forward leaders in war, statecraft and the arts have steeped themselves in the past. They have followed the French motto, which says:

"To go forward turn back."

Today, if we could rid ourselves of some of the silly slogans—"Functionalism," "Enclosure of Space," "Design for Living," etc., and by study of the great monuments of the past realize that architecture has always been the enclosure of space, designed for living and functioning properly according to the economical, technical, religious or social conditions of the day in which built, we might assume a humbler attitude and move forward to greater accomplishment.

Say what we will, we in this country are still under the spell of European culture but in too many cases our artists have devoured the husk, not the kernel. The kernel, as I see it in the best examples of modern European art, is the result of a thorough knowledge and appreciation of past achievements. I wish that our schools of architecture could forget some of the more technical aspects of our profession (these follow automatically in practice) and become leaders in a broader historical approach, with this intent — to create *Architects*, not *Draftsmen*. In all lines of endeavor there is little danger in knowing too much about the past but great danger in knowing too little.

WILLIAM ADAMS DELANO

* * * * *

MORE THAN A CRAFTSMAN

AS ARCHITECTURE is a setting for the various aspects of living and not just a machine for facilitating them, so must the architect be more than a practical designer since this setting may and should have a considerable emotional effect on the people who see it, much as the scenery of a play may indicate the tone of the whole action and determine the mood of the audience. And it is, of course, this power to stir the emotions that makes of a building, as of anything, a work of art which civilization through the years tries to preserve with pride. Thus the architect must have somewhat the skill of the dramatist, or musician, or, in fact, any artist, in understanding the emotions of people and the very springs of their reactions. Indeed the architect's job is singularly difficult, for his audience is so large and varied—composed at once of persons who view his productions a single time or daily, casually or intimately—that the meaning of his work must be expressed with the greatest force. Primarily there must exist an essential moving spirit in the work and secondarily this spirit must be easily evident. When these two qualifications are fulfilled a thing of real significance results.

To attain this end we have said the architect must be more than a practical designer. The proficiency reached by careful and assiduous study must have a background of human understanding and cultivation. Such a background can never be *learned* because it is something which must be *absorbed* and of which the essence in any case is no doubt instinctive, but it is of such importance, although so commonly overlooked, that the mere mention of it seems worthwhile. Too often contemporary conditions and customs lead one to believe that an approved number of doses of teaching along a certain line will entitle the student to a certificate indicating that he has mastered his subject and "has completed his education."

The schools should constantly remind their students of these facts. Their masters should have the breadth of culture, suggestive approach, and stimulating personalities requisite to indicate the scope and challenging possibilities of the field. They can be of great use in assisting the student to imagine the role which each of his edifices might play, and, of more specific importance, to point out the many parallel aspects between architecture and the other arts, demonstrating the fundamental unity of them all that makes them so influential to human nature. Not only need they emphasize the presence of certain basic principles as, for example, rhythm, similar in all the arts, but also they can show how the recognition and study of these principles in one can strengthen and augment the ability to apply them in another. By these and other like methods, that are so easily forgotten in the stress of each immediate piece of work to be done, the master can deepen and improve the quality of the student's design and help him enormously with the always intangible, yet extremely important, problem of giving his buildings character suitable to their purpose and environment, through invigorating his imagination and widening his understanding. Above all, the master can incite the student, by concrete suggestion and illustration, to broaden the cultural and emotional background of his architectural education so that his work may have real and obvious relation to civilization and life itself.

GEORGE SCHLEY STILLMAN
Columbia University

The Trend is Toward HERMAN NELSON

FOR HEATING COMMERCIAL AND INDUSTRIAL BUILDINGS OF ALL TYPES

TODAY, industry and commerce are more conscious than ever before of the need for quality products . . . products which offer all important operating advantages and economies . . . products which will carry on without the frequent attention and repairs so certain to delay production and business.

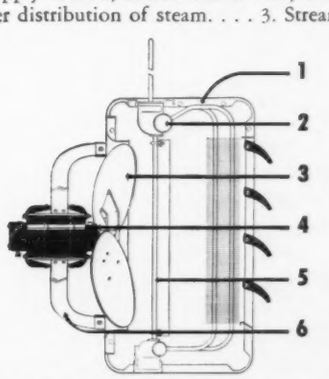
Briefly, this explains the growing trend toward installation of Herman Nelson hiJet Heaters in new and remodeling projects of all sizes and types. There's a reason why greater dependability, longer life and operating economy can be obtained with Herman Nelson hiJet Heaters. The Propeller-Fan Type, Blower-Fan Type and De Luxe hiJet Heaters have all been designed and constructed to provide superior heating results and greater economy of operation than any other unit heater of the same type and capacity.

The complete line of Herman Nelson hiJet Heaters answers today's demand for a method which provides heat where it is wanted, when it is wanted, without waste of fuel or space, in all types of industrial and commercial buildings. A wide range of sizes and capacities in each type of hiJet Heater permits selection of the proper unit for every industrial and commercial heating application.

A COMPLETE LINE OF HERMAN NELSON hiJet HEATERS

A complete line of Herman Nelson hiJet Heaters answers today's demand for a method that provides heat where it is wanted, when it is wanted without waste of fuel or space.

Like all Herman Nelson hiJet Heaters, the Propeller-Fan Type incorporates many exclusive features. A few of those outstanding features follow: 1. Loops in heating element absorb difference in expansion and contraction between individual tubes. . . . 2. Tubes project from side of supply header, above center line, assuring proper distribution of steam. . . . 3. Streamline



fan with wide face area operates most efficiently and quietly. . . . 4. Her-Nel-Co Motor for single, 2 or 3-speed operation. . . . 5. Patented, extra heavy, red brass stay tube maintains proper relationship between headers without increasing strain on loops. . . . 6. Steel arms absorb and dissipate torsional vibration.

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HERE, THERE, THIS & THAT

POTOMAC PATTER

Correction: Last month we mentioned, in connection with the design of the Washington National Airport, the name of *Chandler*, prefixed by the given appellation of *Howard*, which to my consternation, and to the elucidation of his many friends in Public Buildings, is wrong. It's *Harvin*. Some handle, eh, "Jug"?

The "accurate scale model" of the Airport illustrated in your October P.P. was executed by P.B. architects, under the able direction of *Victor Reeser*—our model model-maker.

By benefit of press relations, we were privileged to front-row (on the side) standing room at the Airport cornerstone laying ceremonies. Of course, First Architect of the U.S.A., Franklin D. Roosevelt, did the honors at this grand show put on by your Civil Aeronautics Authority. With about five hundred planes chorusing overhead in the prelude, the main building screaming for attention by the red-leaded brilliancy of its skeleton superstructure and the summary arrival of the President and his entourage, 15,000 spectators had cause for much rubber-necking in all directions. Among the privileged grandstand occupants were many of the P.B. architects, who had worked on the drawings. *Arthur M. Tabbut* and *Murray Klein* dressed for the occasion, by wearing soft collars, thereby lending ease to their sky-gazing. *Louis Gollnick*, accompanying his boss's charming wife, *Mrs. Howard L. Cheney*, did not appear to be able to do much about his gentlemanly, but starched, roll-front. Lending the technical touch to the occasion, were P.B.A.'s notables, *W. E. Reynolds*, Commissioner of Public Buildings, *Louis A. Simon*, Supervising Architect, and *Howard L. Cheney*, Consultant Architect.

In the midst of the President's "peaceful" oration a shout rang out among the spectators, who had been roped off beside the grandstand. A woman's scream brought the police, the guards, and the secret service agents on the run, only to find in the melee none other than P.B. architect, *Robbins L. Conn*, beating the intruder's ears down with his left hand, while tenderly holding his youngster by his right. The intruder merely desired to see the President, and tried to shove past Robbins, who stands one head and two shoulders above the normal "five foot nine."

The first fall meeting of the Washington chapter of the A.I.A. did not offer much opportunity for publicity. Our grapevine reports a very dull and unattended meeting. An illustrated lecture on the subject of "Government in Real Estate Business," given by one of our local real estate operators elicited a slight response from *Louis Justement*, who came to the Government's defense.

In contrast we hereby issue a "rave" notice on the second Annual Picnic of the Association of Federal Architects. Unfortunately we were unable to make it, but *Dan Twiddy* (Public Buildings) reports on the affair in somewhat the following manner:

"The woods and leas of Fort Foote, Maryland, will echo the approbation of all who came to eat, drink and be merry. The maitre d'hote, the chief cook and bottle washer, was *E. J. Kennedy*, (War Department), who aided by his charming wife presented for the edification of the picnickers, a symphony of grilled steaks, sizzling over a roaring fire. The constant rhythm of crackling gristle was music to their hungry eyes.

"*Rudy Dahl* (War Department), head man on the committee of arrangements, saw to it that everyone had a-plenty. For variety, grilled shortribs were "sandwiched" between the steaks, of which each person had three, on the average. On the side, was potato salad, and corn-on-the-cob, well-buttered, (what, no bread?). Coffee and the amber fluid made up the drinks on this excellent bill-of-fare. *Black* (War Department) and

(Continued on page 18)

Scheduled for completion in February is the $300,000 hangar and office building at the Denver, Colorado, Municipal Airport shown in the rendering above from the office of Albert Kahn, Inc., Architects and Engineers, Detroit. It will be occupied by Continental Airlines—which will have its repair and overhaul shops there—and United Airlines offices

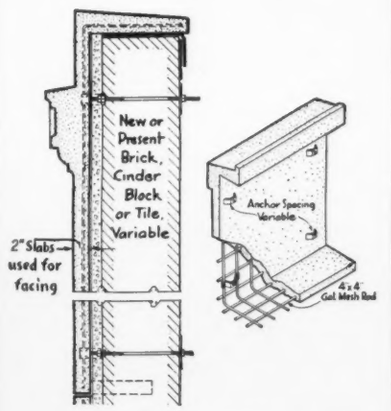
From old brick to . . .

MODERN CONCRETE

with ARCHITECTURAL CONCRETE SLABS!

OLD BRICK WALL of the Wire Rope Corp. of America plant in New Haven, Conn., begins to disappear under new modern facing of Architectural Concrete Slabs. The slabs, *only two inches thick*, made it unnecessary to tear down the old wall.

EXTERIOR TRANSFORMATION COMPLETE. Architectural Concrete Slabs were easily and quickly lifted into position. Bolts through old masonry gave permanent anchorage. Appearance of whole building greatly improved. Architect, Leo F. Caproni, New Haven. Slabs made with crushed quartz and Atlas White portland cement by The Dextone Company, New Haven, Conn.



LEFT: This detail shows how parapet and coping are cast monolithically with the slab and how slabs are anchored to masonry walls by tie rods.

RIGHT: Typical spandrel unit with returns cast monolithically with the slab. Note anchors fastened to embedded reinforcing mesh for bolting to tie rods.

MANY modernization jobs are today simpler, faster and less expensive.

A new building material—Architectural Concrete Slabs—gives to old walls a modern facing that combines the strength of steel and concrete with the permanent beauty of exposed crushed stone. The Wire Rope Corporation transformation shown here, and similar jobs for chain stores, factories, theatres, office buildings—prove the practicability of these thin slabs for almost any modernization job. They offer a greater latitude in structural and decorative design.

What are Architectural Concrete Slabs? Factory-made units of reinforced concrete made with selected aggregates exposed in a matrix of Atlas White portland cement. Slabs are precast in sizes up to 100 square feet or more, and 20 feet or more in length, yet are only 2 inches thick. In selecting and arranging the aggregates, infinite new variations in colors, patterns and surface textures are available and give you remarkable freedom in design.

These slabs bring new economies to modernization. They are quickly and economically anchored in place to old masonry walls. Their large size and varied shapes—curves, angle, channels, spandrels that include window head and window sill—reduce flashing, danger of leakage, and erection costs. They improve property appearance and values.

It will pay to know more about these thin Architectural Concrete Slabs for interiors and exteriors of new and old buildings. For information on remarkable structural and decorative uses, on wide adaptability and unusual economies of these slabs made with Atlas White cement—see SWEET'S CATALOG, Section 4, or write to Universal Atlas Cement Co. (United States Steel Corp. Subsidiary), Dept. A4, Chrysler Building, N. Y. C.

PP-ACS-23

ARCHITECTURAL CONCRETE SLABS

MADE WITH ATLAS WHITE CEMENT

(Continued from page 16)

Wally de la Rosa (Navy) of the committee made sure that everybody was well supplied, including themselves. *Charles Dorman* (War Department) proves the point of a gourmet's consistency! Usually he eats naught but fowl (chicken to you) but on this day he consumed four steaks.

"Besides the usual athletic events of softball and horse-shoe pitching, outstanding performers were discovered in the way of tight-rope walkers, barrel-tippers and other sundry accomplishments, apropos to the occasion."

RED

SPEAKERS NEEDED

The Good Housekeeping Club Service, sponsored by Good Housekeeping magazine, reaches over 20,000 women's clubs each month. Among the services it offers to these women's clubs is to furnish them with names of speakers available to give interesting talks in the different localities. Any architects who are qualified and available to give such talks should file their names, together with other pertinent information such as size of fee, if any, required, subjects of talks which can be given, distance that can be traveled, etc. The address of the Good Housekeeping Club Service is 959 Eighth Avenue, New York.

The giving of talks by architects before women's clubs can be extremely helpful in acquainting the lay public with the nature of the architect's services, both to individual clients and to their communities. Architects who embrace this opportunity may thereby do valuable service to their profession.

BOSTON NOTES

As we scuffle the fallen leaves and breathe scents of their smoke from autumnal fires it is recalled that the natural background of our life shifts with a precise and timeless excellence. And, too, a seasonal accounting of the *dramatis personae* reveals familiar groupings: schools reopened and organizations revived; blueprint runners scuttling to and from the engineers' offices; a second generation of roadworkers still trying to complete the re-surfacing of Atlantic Avenue.

In the prints (public) we note that defense housing has been planned for Massachusetts; at arsenals, navy and ship yards. Behind the scenes we suppose a hundred architects are pulling more wires than so many puppeteers to capture some of this manna. It would be miraculous indeed if the interested ones waited, professionally, in the receiving line until their proper turn came.

Without being overly specific, a survey of survivals about town shows a great need for business from any quarter. Marblehead's *T. B. Hanna* recently swung through the Middle West, and regaled us with stories as of a beehive; in immediate contrast we could report men who had just severed Boston architectural connections which were even pre-Depression. They didn't stay idle long, in truth, but 'twas a berth in the fringes that saved the day.

Small house offices announce a lull of generous proportions, but new apartment house construction is popping. In the domestic field a young practitioner tells of a Vermont client who wanted plans without superintendence, and got them, but he telephoned for an urgent conference a few months later. The architect's brain-child looked as though it had been delivered by an iron-puddler, and when the owner begged for a specific he advised tearing the durn thing down. So they did. Need I say

(Continued on page 21)

PECORA Calking Compound is now on duty in this large hospital building and nurses home. It will be depended upon to render 24 hour service every day of the year for many years to come. No moisture, no dust, no drafts, will be permitted to penetrate joints that have been sealed with Pecora. Regardless of heat, cold or moisture, Pecora will retain its permanent elasticity, for when properly applied, Pecora will not dry out, crack or chip.

CHARITY HOSPITAL & NURSES HOME NEW ORLEANS, LA.*

*Pecora Calking Compound was specified by Weiss, Dreyfous & Seiferth, the Architects for this large hospital project. Nachary Builders Supply Co., Inc., of New Orleans were the Calking Contractors for Geo. A. Fuller, Genl. Contrs. for the hospital building, and for Burks Bros., the Genl. Contrs. for the nurses' home.

Pecora invites your specification wherever the use of calking compound is indicated for weather protection, for temperature regulation, and for fuel saving.

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GENERAL ELECTRIC
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(Continued from page 18)

poetic justice entered the picture for the rebuilding had superintendence.

The Architectural League of Boston's meeting of September 26 had *James A. Harding* of Dodge Reports as speaker. On October 3 occurred the League's first lecture, in a series of twelve, on the vocabulary and conventions of engineering practice, covering materials used, method of graphic representation; the sources and selection of competing materials and types of construction. This course, for members only, is under the direction of *A. Bela Sziklas*, who gave the initial talk, on Foundations.

The social event of the month is announcement of *Robert Sawyer (Bob) Jigger's* marriage to *Esther Rosetta Goode*. And we wager B.S.J. makes a dutiful spouse, knowing positively that he has no bad habit, but the rare use of forceful expletive.

In the matrimonial class of 1939 *Charles H. (Halicarnassus) Smith* has just graduated to the eminence of diaper flipping, that vivid stop known as diapason in the domestic harmony.

It's only human nature, tinged with premature futility, to hope for Christmas graft in the offices. Only a few of us ancients remember the lush days when it almost troubled a fellow's conscience, but not quite. But in any event *Doug Gass* is going to buy a set of Gumbril's Patent Small Clothes, with the full pneumatic seat, and take to his skates this winter. Says Mr. G, "Scotch ice has a beneficent resilience which I have been given to understand is not to be relied upon in your local product, excepting possibly the tiddlies. These Small Clothes were invented to take the curse off hard Presbyterian pews, and riding to the hounds, but should do very nicely on the frozen Chas."

LEON KEACH

CHICAGO LECTURES

Portfolio lectures comprising the Fall and Winter Program of the Chicago Architectural Club have been announced by *Ralph F. Gross*, President. The lectures cover various branches of the profession and are limited to an hour and a half so that they will not interfere with other events scheduled the same evening. The Club's headquarters are at 222 North Bank Drive, Chicago.

INDUSTRIAL DESIGN

A series of lectures by well-known Industrial Designers is being conducted by the School of Architecture and Allied Arts of New York University on Thursday afternoons, 5:30 to 7:15 o'clock. A fee of $10.00 is charged for the series.

Those who are lecturing in the symposium and the subjects they are discussing are listed as follows: *Gilbert Rohde*, "What is Industrial Design? Function of the Industrial Designer. Commercial Value of Design, Opportunities, Training"; *Raymond Loewy*, "Designing for Transportation"; *Donald Deskey*, "Production and Distribution of Modern Shelter"; *Henry Dreyfuss*, "The Designer, the Engineer, and the Public"; *George Sakier*, "Decorative Glass and Metal — Domestic Engineering"; *Walter Dorwin Teague*, "The Scope of the Industrial Designer's Influence"; *Russel Wright*, "Home Furnishings of Modern Design"; *Herbert Bayer*, "Presentation and Display"; *Martin Ullman*, "Packaging Design"; *Eleanor Le Maire*, "Modern Design of Shops in Terms of Merchandising."

LARGER FACULTY

The art department faculty — a branch of the College of Fine Arts — at the University of Texas has been more than doubled with the addition of six new staff members this fall. New appointees include *Gibson Danes*, Associate Professor of art history; *Arne Randall*, Associate Professor of art education; *Everett Spruce*, Teacher of Applied Art; *Edward Taylor*, *Eugene Trentham*, and *Constance Forsythe*, Instructors. Miss Forsythe will also serve a curator for the departmental exhibits.

LUCIUS W. BRIGGS

Lucius W. Briggs, outstanding architect of Worcester, Massachusetts, died on September 10th at the age of 74 years. From 1896, when he first established his office, Mr. Briggs had spanned a great era in the history of American Architecture.

After studying at the Massachusetts Institute of Technology he sought practical experience with the fabulous O. W. Norcross Company and other builders, and thence progressed to an architectural partnership with Messrs. Frost and Chamberlain, withdrawing in 1912 to form the L. W. Briggs Company.

As a young man he won a major award in the Worcester County Courthouse Competition, and thereafter designed most of that county's important structures for many years. In the broad range of his practice there were buidings at Worcester Polytechnic Institute, Clark and St. Lawrence Universities and many schools, residences, and banks. In recent years one of his major commissions was the huge Worcester Memorial Auditorium, a competitive prize won in collaboration with Frederic C. Hirons. Nevertheless Mr. Briggs' enthusiasm for the successful execution of lesser commissions was invariably keen, and he will be remembered as a talented gentleman of impeccable ethics and broad civic interest; never too absorbed in large problems to become impatient over little ones.

He was a member of the A.I.A. from 1902, President of the Worcester Chapter for more than 20 years, and a long-time member of that city's Planning Board, its Historical Society and other organizations. His son Stuart W. Briggs has been associated with him since 1920, and carries on the practice.

LEON KEACH

SAMUEL YELLIN

Samuel Yellin of New York and Philadelphia, widely-known as a master craftsman in hand-wrought metal work, died suddenly last month at his New York home. He was a native of Poland and was 55 years old.

When Mr. Yellin came to this country in 1906, he located in Philadelphia where the School of Industrial Art at the Pennsylvania Museum was beginning classes in metal work. He was enrolled as a student in the ornament and design classes and was put in charge of the forge later becoming instructor in iron work. He taught for several years before entering business as a designer and decorative metal craftsman.

He was the recipient of many awards—among them the Bok Civic Award in 1925, as Philadelphia's outstanding citizen. He also received many medals and tributes for his work and always referred to himself simply as "a blacksmith." Mr. Yellin's works included wrought iron design and executed for many of the architectural monuments of the East.

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Mr. Neergaard's comment discusses hospital heating with oil from the vital standpoint of hospital service. But operating costs present to hospital management a more difficult problem than is faced by managers in other fields because the nature and function of hospitals narrows the scope in which economies are safe or practical.

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A.R.P. COURSES

Courses in "Air Raid Precautions," including the design and construction of shelters, the protection of old and new buildings, black-out provisions, ventilation and camouflage, have been started by the Architectural Department of the School of Fine and Applied Arts, at Pratt Institute, Brooklyn, *C. C. Briggs,* Supervisor of the Department, announces.

The services of *Erling F. Iverson,* a graduate of the Institute's architectural department who later studied at New York University and Princeton University, have been secured as coordinating instructor in charge of the new program. Mr. Iverson is especially qualified for this work by the fact that he spent the past two years in Europe, specializing in the study of air raid precautions, both in England and Germany.

CARNOHAN DISPLAY

Forty drawings, paintings and water colors by *Harry Carnohan*—American landscape artist recently appointed to the teaching staff in the School of Architecture, Columbia University—have been placed on display at Columbia through November 15.

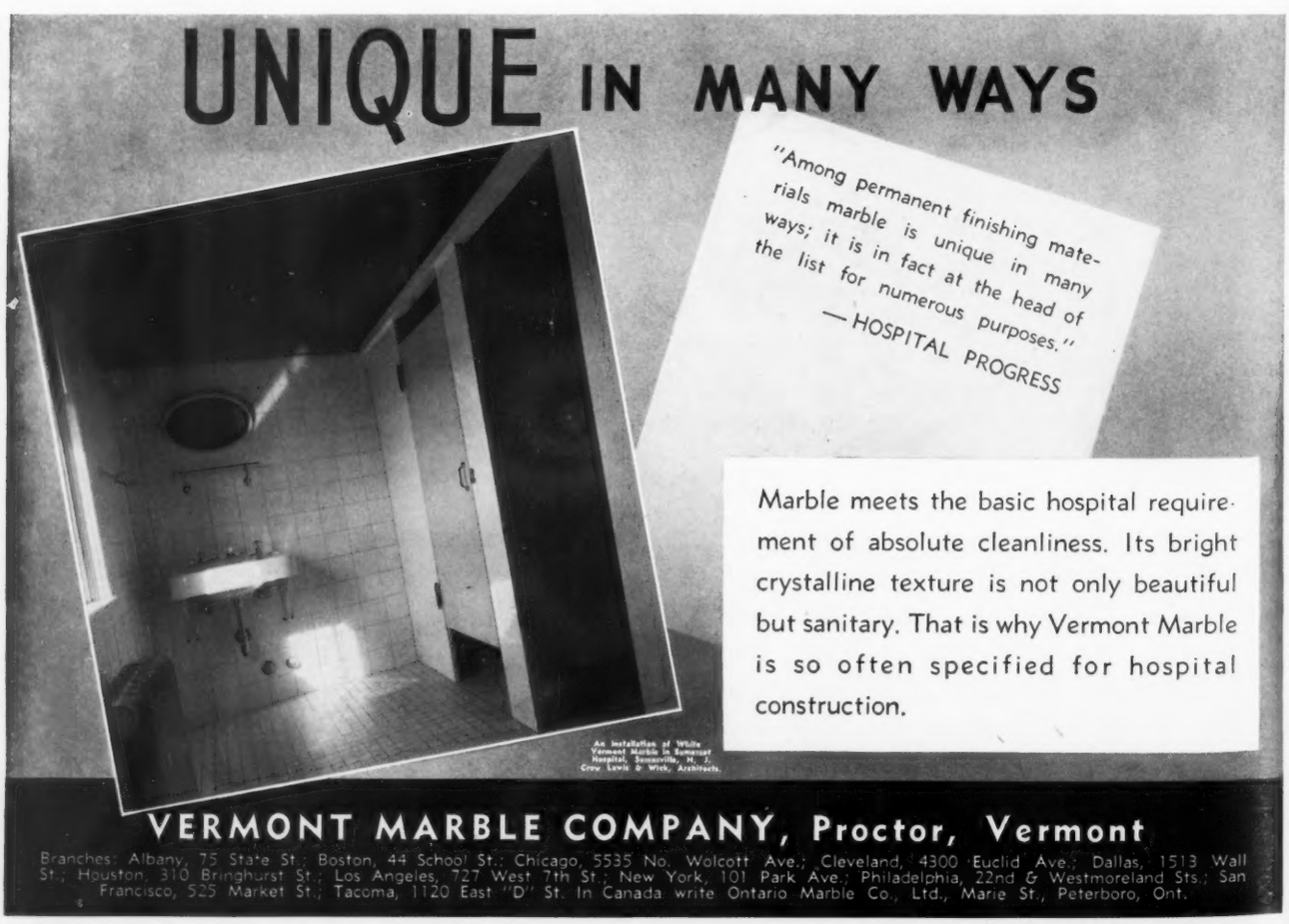
CIVILIAN SHELTERS

Plans for civilian shelters in New England which may serve as models for other areas of the United States are being prepared by a special committee of the Boston Chapter of the American Institute of Architects. The work, it is explained, is part of a comprehensive program of non-combatant defense which is being developed by the committee, headed by *Chester Lindsay Churchill,* Boston Architect.

Members of the architectural committee, in addition to Mr. Churchill, are *William Emerson,* President of the Boston Chapter; *H. Daland Chandler,* Regional Director of the American Institute of Architects; *William Roger Greenley, Marc Peter,* and *John T. Whitmore.* Governor Saltonstall has informed the committee that it will be accorded representation on the Defense Committee for Massachusetts. The committee will place its services at the disposal of the governors of other New England States.

The National Resources Board has had made for the committee a map of New England showing all the vulnerable spots which it is believed would be targets for an enemy bomber. The possibilities for shelters, either temporary or permanent, as outlined by the committee, include existing structures above ground, subways, underground shelters, overhead shelters, and trench shelters. All of these types of construction, it is pointed out, are distinctive planning jobs and building problems. The assembling of data, the working out of the design from this data, the planning and detailing of construction, and the specifications, all of which are necessary to make this information of proper use to the authorities, are definite architectural functions, it is declared.

Housing, camouflage, re-zoning, building code changes, city planning, preservation of historical structures, and rehabilitation, are other fields of non-combatant defense which are being explored by the architects, who announce their readiness to act as advisers to the Government on building problems and as consultants on organization measures. To initiate action by other New England architectural groups and to correlate their activities with the efforts of the state and federal governments is another objective of the committee.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PENCIL POINTS

KENNETH REID, EDITOR. CHARLES MAGRUDER, MANAGING EDITOR
DON GRAF, TECHNICAL EDITOR

THE MONOGRAPH SERIES
RUSSELL F. WHITEHEAD, EDITOR

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A LESSON TO BE HEEDED

AN EDITORIAL BY KENNETH REID

One of the things that might happen here has already been happening in England. Long before war started, it was pointed out to the Government there that a thoroughly organized, efficiently operated building industry would become of first-rate military importance. The Government agreed, to the extent of instructing the industry's personnel to abstain from joining the armed forces and to stand by for further instructions.

When the war began, the industry appealed for a single, powerful authority to be put in charge of it—"to allocate existing resources, forecast future demands, and prepare resources to meet those demands." (We are quoting from the October 10, 1940, issue of *The Architects' Journal, London.*) Instead of following this recommendation, the Government continued to let each Department handle its own building needs. Only a fraction of the industry's resources were engaged and the rest was allowed to distintegrate through unemployment. There was, of course, little private building.

Things muddled along until bombing began, when the job of maintenance and repair of buildings of all kinds became added to that of new construction for industrial expansion.

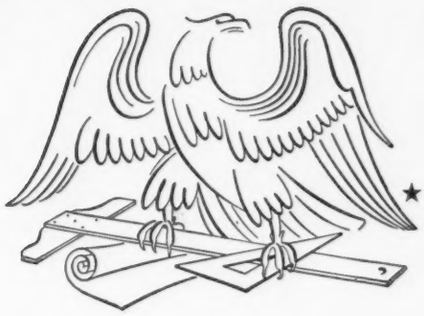
By mid-September of this year, it became more evident that serious confusion would result unless some central authority were created, combining (1) comprehensive factual knowledge of the building industry's resources, (2) the power to keep them replenished against future demands, and (3) the duty of allocating them as needed by the several Service and Supply Departments.

Now, after over a year of war, a Minister of Works and Buildings has finally been appointed. *Hope* is expressed by the *Journal's* editor that this Minister's duty will be "to learn how every existing resource of the building industry is being used, to list all existing materials, to demand a program for a year ahead from all users of building products and labor, to standardize and simplify all types of building and building equipment capable of being so treated, to see that labor and materials are ready in time for future work and to allocate them with the greatest skill."

Architects and other members of the building industry in the United States have every reason to be interested in this recital of experience in England. We believe that they can learn from the mistakes of others. We are not so sure, however, that politicians of whatever party may be in power here during the coming months and years will recognize the vital importance of coordinating all building effort with the Preparedness Program and treating the building industry as an essential *unit* for defense. It is none too soon to begin applying pressure to the politicians to make them understand and act.

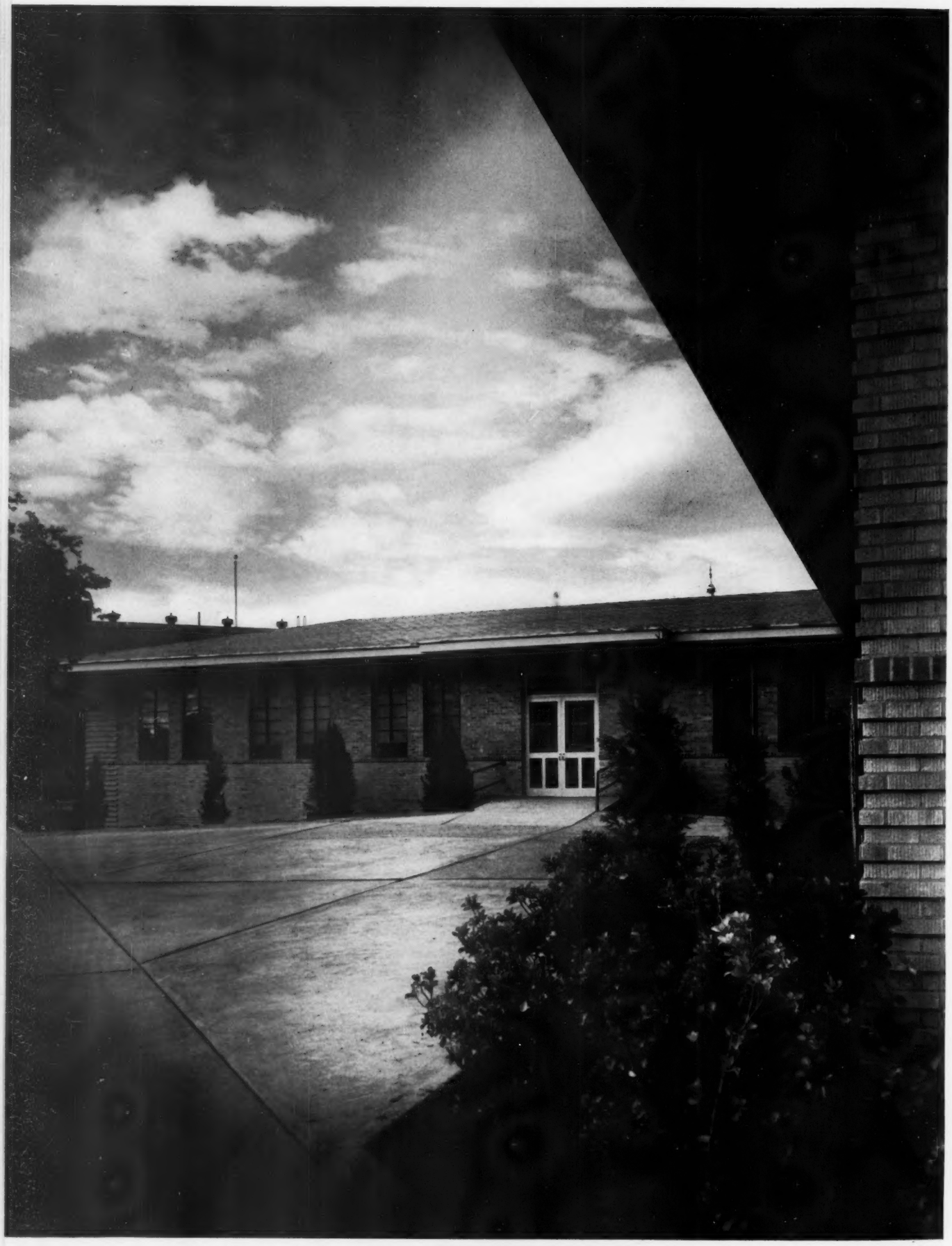
* * * *

Hats off to the Milcor Steel Company, manufacturers of steel building products and accessories, for setting a truly patriotic example to other industrial and business enterprises, and to all other companies that have already followed that example. The Milcor Company has announced that it will match the army pay envelope, dollar for dollar, for any of its employees who are called out under the Selective Service Law, supplementing the income of such employees (and of those called for the National Guard) by an amount equal to the army base pay. It will also maintain the group insurance in effect for these men at the time of their enlistment until they come back to work and will preserve their seniority rights. Twenty percent of this company's employees are within the draft age limits. Things like this show why American democracy is strong.



The Architect's Place in the Preparedness Program

IV - Hospitals



SMALL HOSPITAL AT DOUGLAS, ARIZONA, DESIGNED BY EGGERS & HIGGINS, NEW YORK, ARCHITECTS, AND LESCHER & MAHONEY, PHOENIX, ASSOCIATE ARCHITECTS, TO SERVE AN INDUSTRIAL COMMUNITY

OUR HOSPITALS ARE PREPARING

BY RAYMOND P. SLOAN*

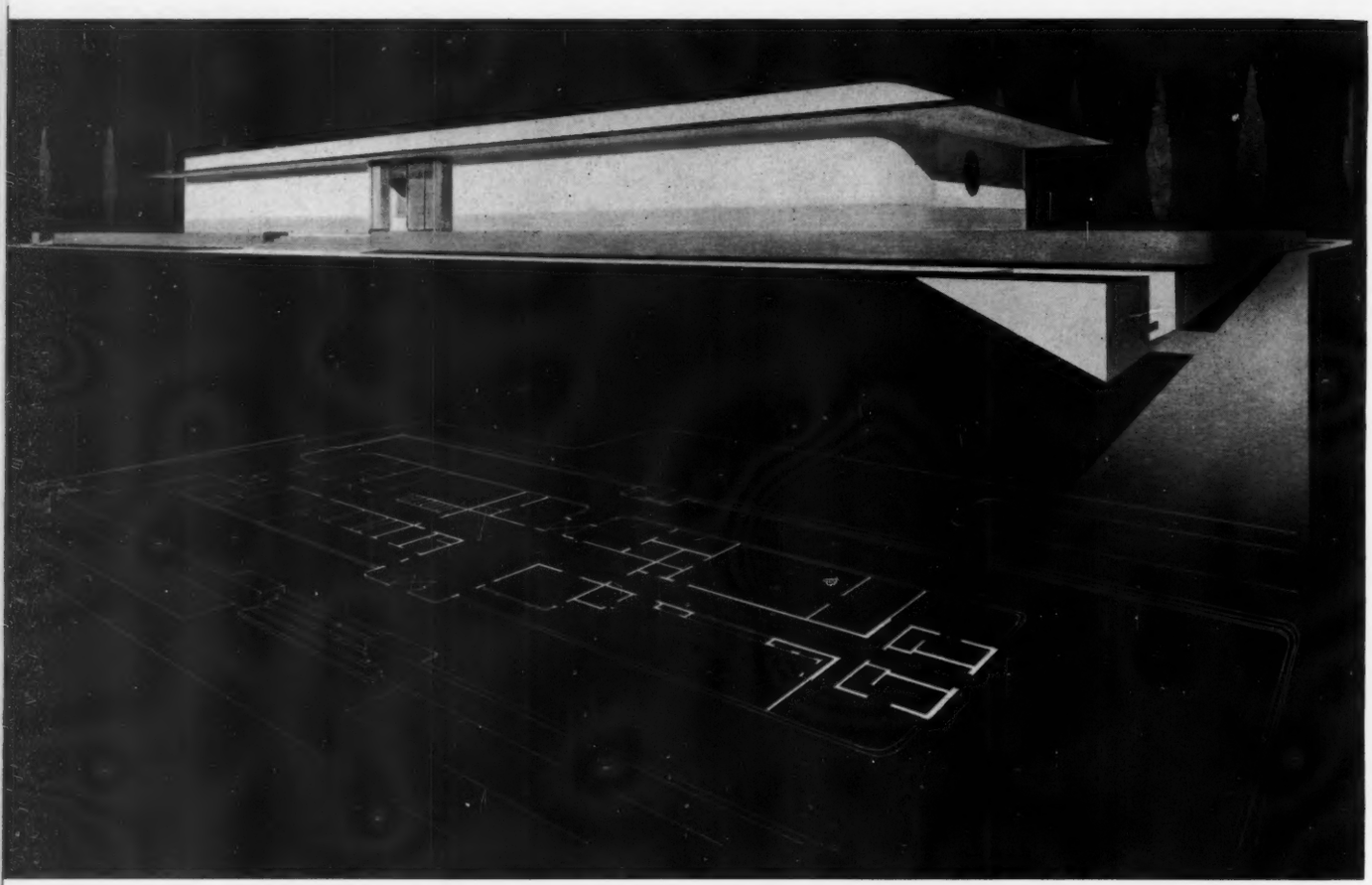
American voluntary hospitals, now completing the busiest year in their histories, are looking ahead to determine their precise functions in a world at war. Institutions already operating at capacity, or at least approaching a dangerously high census, are faced with the problem of meeting new demands produced by the exigencies of a Preparedness Program. As one hospital authority puts it, the problem is two-fold—first, to continue to care for the civil population under any and all circumstances, and second, to render such assistance to the military program as may be necessary.

The pressure of work upon our hospitals through the availability of service at low cost to the public by hospital service plans has already brought steady expansion. No less than 5,180,000 persons are now enrolled in some sixty non-profit hospital service plans throughout the country, according to the latest figures released by the American Hospital Association. This represents an increase of 1,300,000 during the past year. Further, it has been suggested by Dr. S. S. Goldwater, President, Associated Hospital Service of New York, and formerly Commissioner of Hospitals in New York City, that if these plans meet the responsibility of continuing to enlarge the service, utilizing all of the resources of hospital and medical cooperation in the voluntary approach, it is highly probable about 50 percent of the American population will eventually be enrolled.

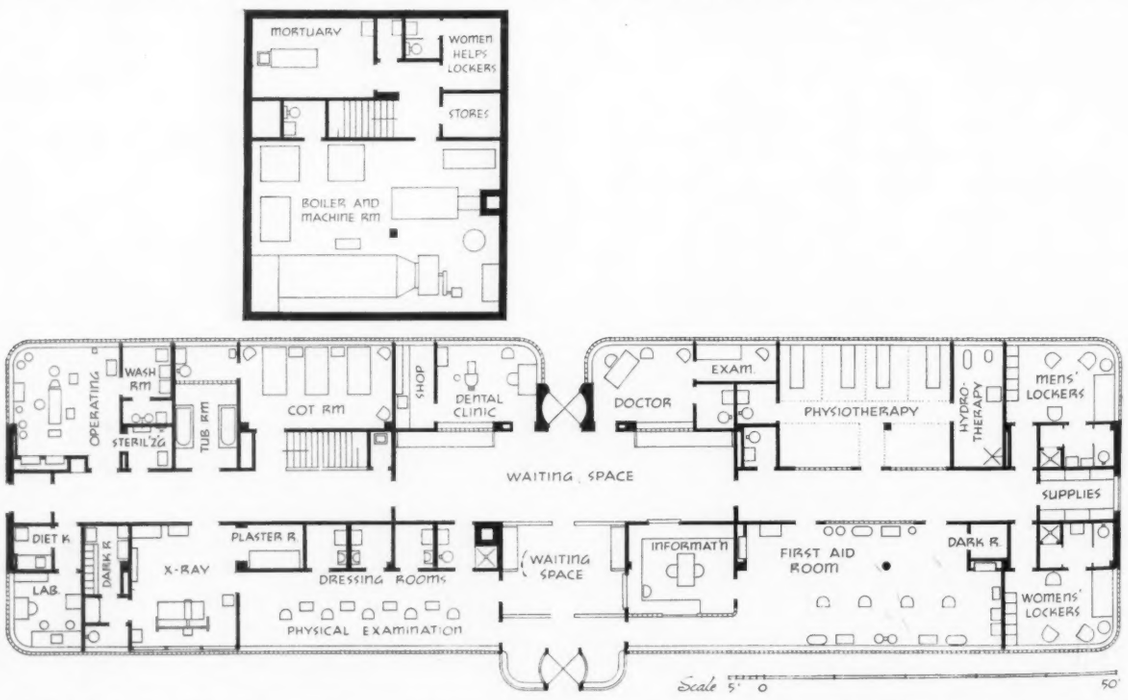
To accomplish this alone will involve additional facilities and the modernization of existing facilities. Then there are the potential emergencies inflicted by the Defense Program. It is generally agreed that civil hospitals in this country will eventually be involved, even if nothing more serious happens than being prepared. In certain areas these institutions will face an abnormal demand because of the tremendous increase of population due to the locations of new industries or the expansion of existing industries. In revealing this situation Dr. Winford H. Smith, Director, Johns Hopkins Hospital, Baltimore, and Head of the Division of Hospitals of the Medical Department of the Army during the World War, indicates that the housing problem in certain localities is already acute. He cites one city, for example, with a normal population of 60,000 where the expansion of the old and the new industries would bring 30,000 additional workers with their families. Elsewhere, it is pointed out that families are living already in single rooms, garages, chicken houses, and tar-papered shacks. There exists a real problem for the local hospitals in such areas.

But where is the necessary support coming from to defray these expenses and to insure adequate hospital service? If a real emergency should develop, it would seem inevitable that to keep these hospitals going, also to assure hospitalization in areas not now adequately serviced, government appropriations would be required, these few millions being small, however, compared to the bil-

* *Editor of* THE MODERN HOSPITAL; *Trustee of the Long Island College of Medicine, 350 Henry St., Brooklyn, N. Y.*



THE PERSPECTIVE ABOVE SHOWS A DESIGN BY HOLABIRD & ROOT, ARCHITECTS OF CHICAGO, FOR A "PROPOSED EMERGENCY HOSPITAL FOR A LARGE INDUSTRIAL PLANT." THE REPRODUCTION DOES NOT SHOW CLEARLY THAT IT IS INTENDED TO BUILD ALL EXTERIOR WALLS OF GLASS BLOCK (SEE PLAN BELOW) PROVIDING MAXIMUM LIGHT FOR THE HOSPITAL ROOMS WITHOUT EXPOSING OCCUPANTS TO VIEW AND ALSO PERMITTING MAXIMUM FLEXIBILITY IN THE INTERIOR ARRANGEMENTS. PARTITIONS MAY BE SHIFTED READILY, AS CHANGING NEEDS DICTATE, WITHOUT AFFECTING THE HOSPITAL STRUCTURE



PROPOSED EMERGENCY HOSPITAL—HOLABIRD & ROOT, ARCHITECTS

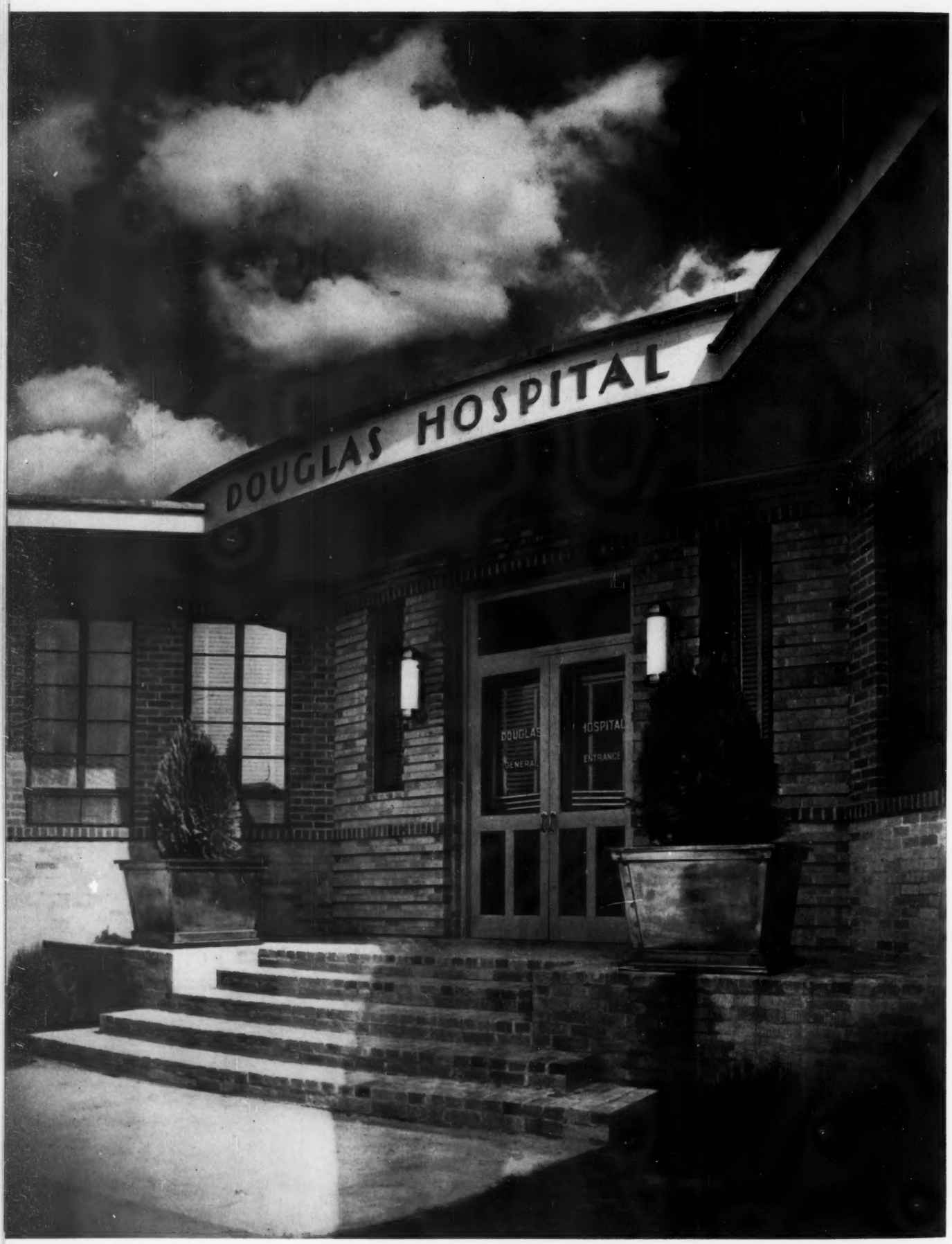
lions appropriated for other services. To quote Dr. Smith again — "These hospitals will be needed in the future as they have in the past, war or no war. It would, therefore, be folly to spend all their reserve funds and endowment funds and have nothing left with which to carry on afterwards, when they will be needed quite as much as before."

Such opinion on the matter of federal aid in establishing funds to assure adequate hospital service under present emergencies is shared by hospital authorities generally. The past year saw the Wagner Bill discarded, temporarily at least. In its place attention was focused on the proposed National Hospital Act, which, were it to become law, would appropriate $10,000,000 for the construction of small hospitals in communities not now supplied with hospital facilities. Hospital authorities have also been consulted in regard to the Mead Bill, which would provide a loan fund upon which hospitals might draw for plant construction and other purposes. The amount proposed for hospital needs would not exceed $100,000,000, and the interest suggested was 2 percent with loans running for as long as fifty years. At this writing, however, it seems unlikely that any federal legislature having to do with the welfare of hospitals will be enacted within the next few months.

In the meanwhile, our hospitals are preparing. Already some sixty institutions in different sections of the country have been requested to organize units of one kind or another. Some 6,000 more are ready to serve if necessary. At a general session of the American Hospital Association held in Boston in September, there was appointed a special standing committee on Hospital Preparedness, "which shall coordinate and cooperate with the committee of the American Medical Association and any other organizations interested and which shall represent the American Hospital Association before all departments of the Government concerned with preparedness [measures] affecting civil hospitals."

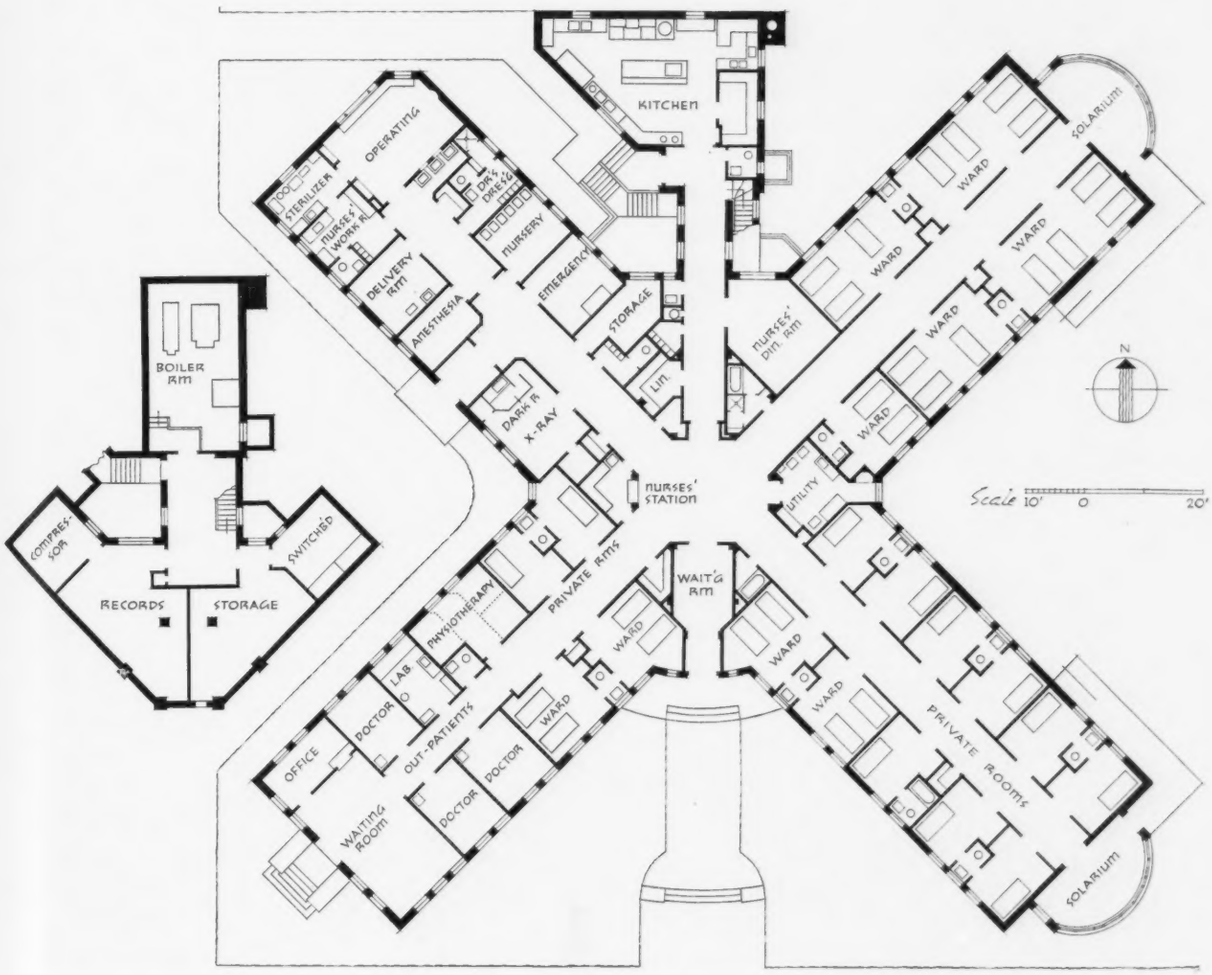
The problems are many: the answers unknown at this time, but the challenge has been accepted. Studies made during the previous World War are now being revised with information not included at that time added, such as the various types of hospitals that may be needed, how large these units should be, and where located. It is also likely that careful studies will be made of hospital construction and equipment to insure the presence of safe, efficient and comfortable institutions that may be erected promptly or added to as the need arises at a minimum expenditure of time and money.

Our hospitals are preparing!

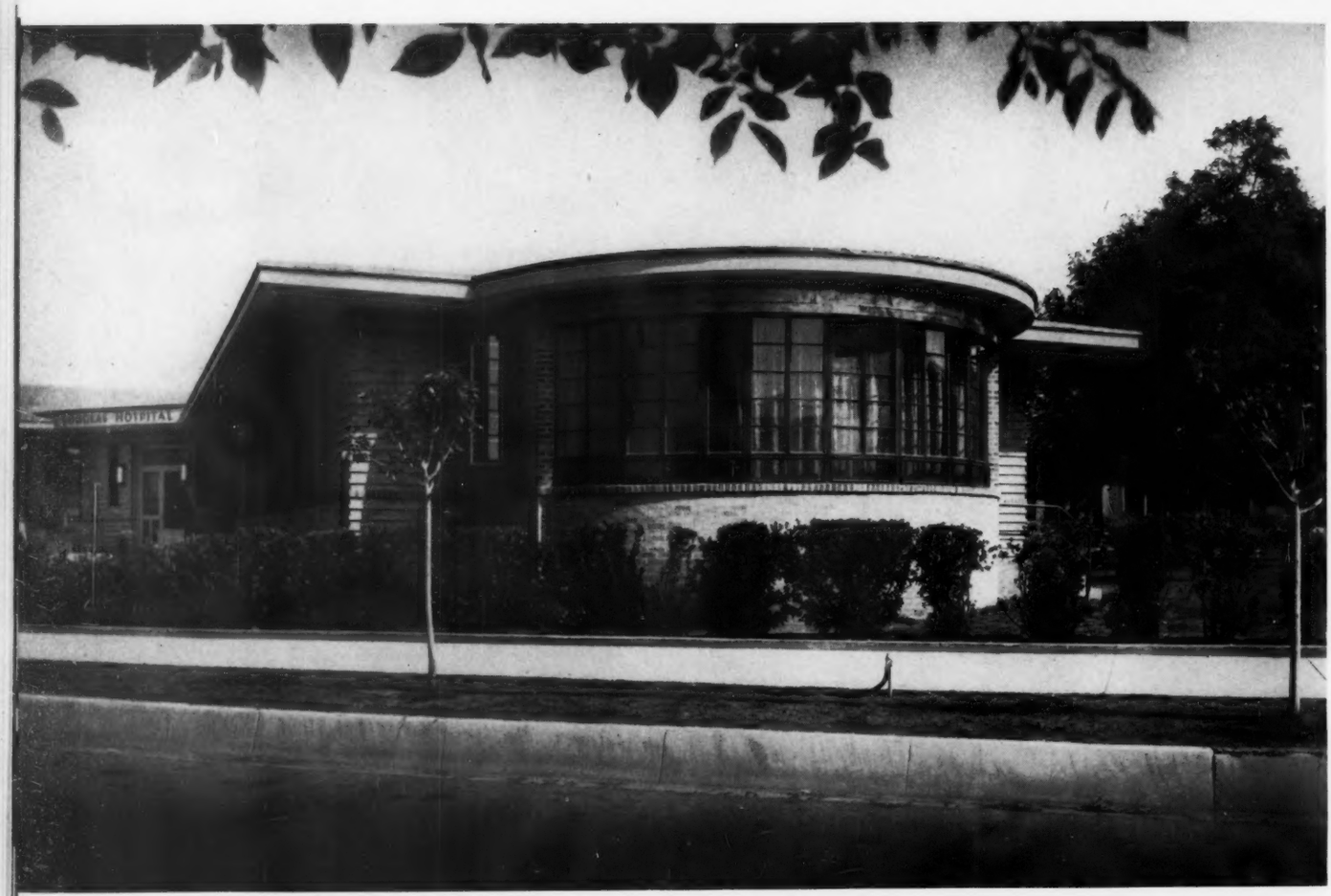


SMALL HOSPITAL AT DOUGLAS, ARIZONA—BY EGGERS & HIGGINS

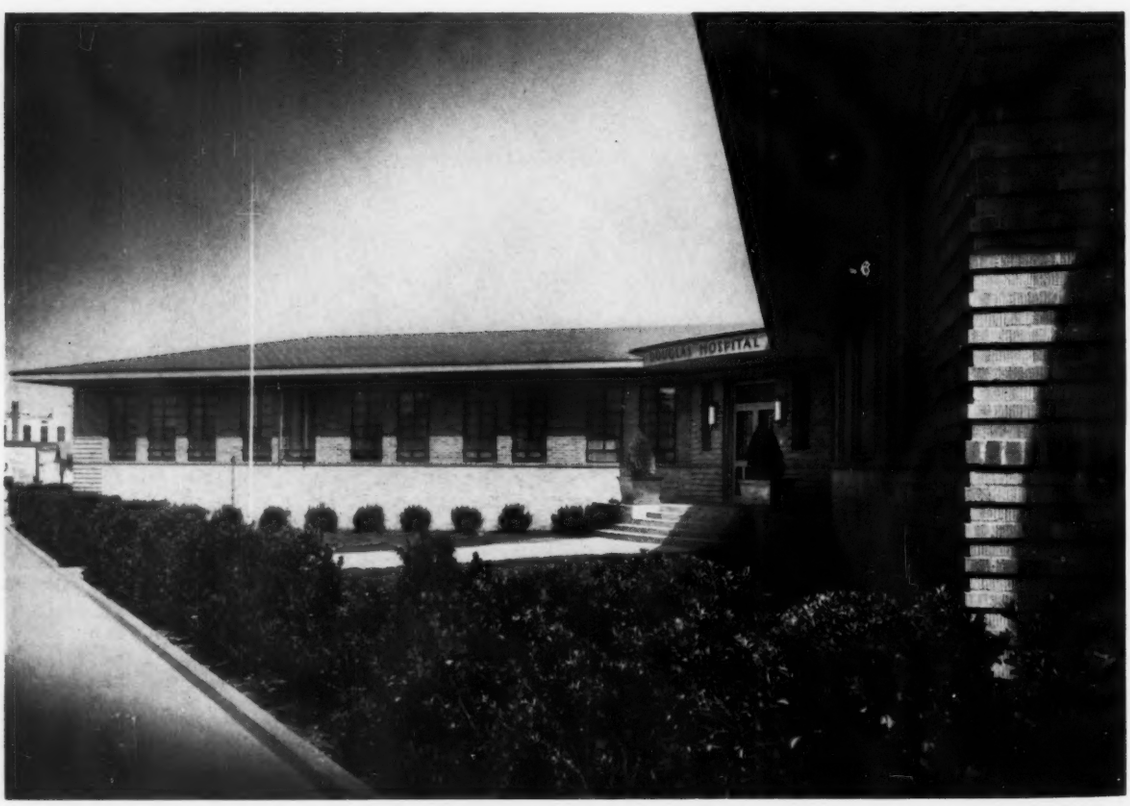
THE DOUGLAS, ARIZONA, HOSPITAL DESIGNED BY EGGERS & HIGGINS, NEW YORK, ARCHITECTS, AND LESCHER & MAHONEY, PHOENIX, ASSOCIATES, FOR THE PHELPS DODGE CORPORATION SERVES AN INDUSTRIAL COMMUNITY. THE MASONRY WALLS ARE FACED WITH A LIGHT-TONED VARIEGATED LOCAL BRICK THAT HARMONIZES WITH THE NEAR-BY POST OFFICE. STRUCTURAL STEEL WAS USED IN THE FRAMING FOR THE LOW-PITCHED ROOF OF PHELPS DODGE COPPER SHINGLES. THE OPERATING ROOM IS AIR-CONDITIONED



AND LESCHER & MAHONEY, FOR THE PHELPS DODGE CORPORATION

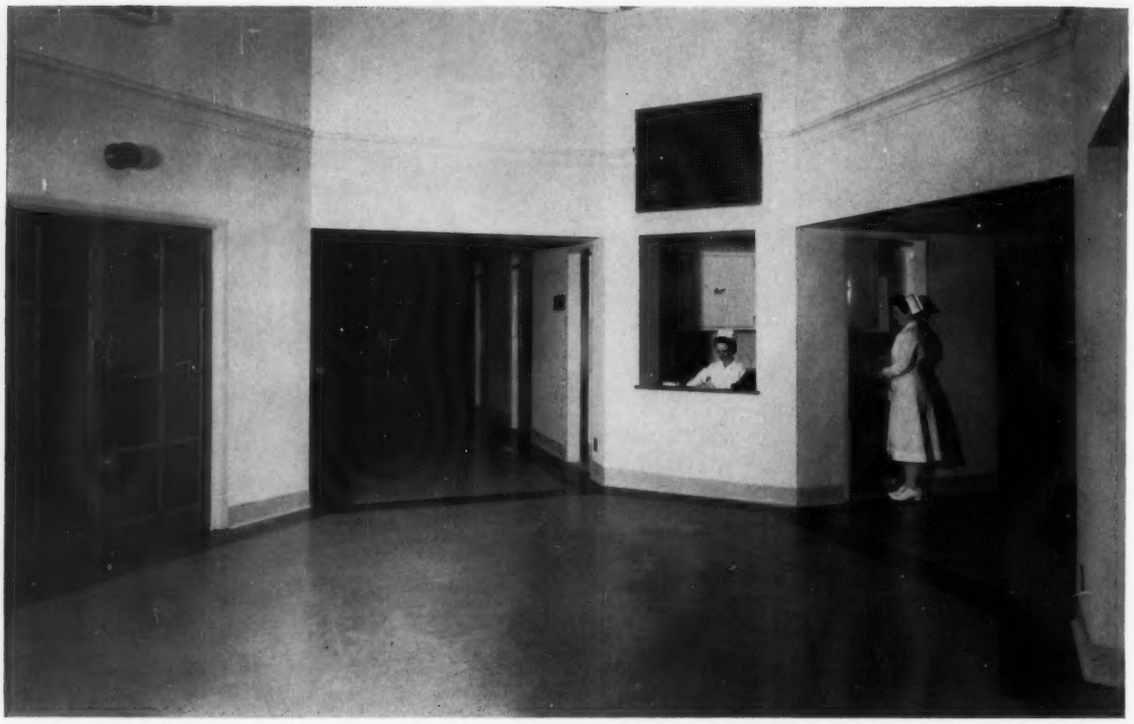


THIS PATIENTS' SOLARIUM IS LOCATED AT THE END OF THE WING EXTENDING TO THE SOUTHEAST



ANOTHER VIEW OF THE STREET FACADE AND PRINCIPAL ENTRANCE OF THE HOSPITAL BUILT AT DOUGLAS. THE PHOTOGRAPHS OF THE EXTERIOR OF THE HOSPITAL WERE ALL MADE BY MAYNARD L. PARKER

ENTRANCE TO OUT-PATIENT DEPARTMENT AT THE END OF THE SOUTHWEST WING OF THE DOUGLAS HOSPITAL. THE SAME DESIGN WAS REPEATED FOR A PHELPS DODGE HOSPITAL BUILT AT MORENCI, ARIZONA



TWO ROOMS REPRESENTATIVE OF THE INTERIOR TREATMENT OF THE HOSPITAL AT DOUGLAS, ARIZONA, DESIGNED BY EGGERS & HIGGINS, ARCHITECTS, AND LESCHER & MAHONEY, ASSOCIATES, FOR THE PHELPS DODGE CORPORATION, ARE SHOWN HERE IN PHOTOGRAPHS BY IRWIN'S STUDIO. THE NURSES' STATION (ABOVE) IN THE FOYER AT THE INTERSECTION OF THE FIVE WINGS OF THE BUILDING HAS A CLEAR VIEW OF THE CORRIDORS AND PERMITS DIRECT CONTROL OF ROUTINE ACTIVITIES. THE PLEASANTEST ROOMS OF THE HOSPITAL ARE THE SOLARIA PROVIDED AT THE ENDS OF THE TWO WINGS EXTENDING TO THE EAST

HOSPITALS FOR INDUSTRY

BY GEORGE S. HOLDERNESS*

Generally speaking, the establishment of an industrial hospital is a matter of expediency and paternalism, combined in varying proportions. It is axiomatic that a healthy workman does a better job, and large industrial companies are keenly aware of the importance of preserving their employees' physical and mental fitness. Quick and complete recovery from industrial diseases and disabilities, as well as from the ordinary gamut of human ills, means the employees' speedy return to the production line and relief from the mental hazard of possible unemployment.

To assure this speedy return, and in many cases for sheer humanitarian reasons as well, the industrial or "company" hospital has been created. In the heart of a metropolis, where large and modern hospitals with efficient ambulance service are readily available, the need for the company hospital is negligible. The locations in which it is usually found are those communities which have unsuitable or inadequate hospital facilities and the remote, isolated spots which boast no facilities at all. These circumstances of geography and environment also make the company hospital the logical agency to care for the employees' families, and in some instances townspeople are admitted.

In a highly industrialized Eastern State a sort of syndicated chain of industrial hospitals is conducted by a large group of manufacturers, who include many of national reputation. The New Jersey Manufacturers' Association Hospitals, Inc., operates such institutions in Newark, Clifton, Jersey City, and Trenton for the benefit of its members whose employees have received injuries arising out of and in course of employment. In these hospitals, the business of the general public is not solicited.

In the industrial mobilization for national defense, which is now getting under way with a variously reported amount of dispatch, the so-called industrial hospital may play an important part. As now contemplated, the government is expected to create in the interior of the country, far from the potentially dangerous seacoasts and border lines, a number of entirely new industrial centers consisting of large war-industry plants surrounded by workmen's homes and the necessary adjuncts of a self-contained community. The industrial hospital will be the community hospital and, as such, will be a vital factor in national defense.

As hospitals go, the average industrial hospital is a small institution, even though operated by a large company, and its planning offers most of the tough problems peculiar to the planning of small hospitals. It is not done by carefully adjusting one's proportional dividers and translating one's last large plan into a small-sized edition of the same thing. Many features must be done away with, some must be combined with

* *Associate of Eggers & Higgins, Architects, of New York*

others, and some must be retained at all cost. The program is set up on an ultra-selective basis, carefully weighing the company's bed-capacity requirements, its particular industrial risks, and its probable needs in the line of diagnostic and therapeutic facilities.

When the Phelps-Dodge Corporation, one of the nation's leading copper producers, decided to embark on a program of hospitalization for their Arizona interests they elected to build not a single hospital but two identical ones in widely separated locations of the company's operations. Both units were completed recently and now are in service. One has been built in Douglas, a town of about 10,000 population which is situated on the Mexican border and is the location of the corporation's western offices and their Copper Queen Smelter. The address of the other is Morenci, the scene of some of the company's large mining activities. Both of these cities are at high altitudes, Morenci enjoying an elevation of 4800 feet and Douglas 3900 feet, above sea level.

In sponsoring this hospital work the owners have given tangible evidence of their interest in the welfare of their employees. Both hospitals are open to the employees' families also, and the Douglas unit, which replaces an earlier, outmoded hospital, is available for the townspeople generally, allowing any registered physician practising medicine and surgery to admit and treat his patients here. These hospitals are operated by the company's medical department, which maintains in them its own medical staff and registered nurses.

The Phelps-Dodge hospitals were designed by Eggers & Higgins of New York under the direction of the firm's associate, George S. Holderness, and construction was ably supervised by their Associate Architects, Lescher and Mahoney, of Phoenix. The structures, which were built by the M. M. Sundt Construction Company of Tucson, are of a single story, the one main floor embracing everything except the heating plant and storage rooms, which are in an abbreviated basement. Each institution has a capacity of 35 beds.

In order to facilitate a centralized control and thus to reduce operating personnel to a minimum the buildings were given a cruciform plan, with the four principal wings spaced at 90-degree intervals. At the crossing of the wings is a central foyer, a hub from which all corridors radiate and adjoining which are the nurses' stations and utility room. Also opening on this foyer is the small waiting room at the building's main entrance, as well as the service corridor which leads to the kitchen department in the rear and bisects the angle between two of the main wings.

The patients' quarters consist of eleven private rooms, five semi-private rooms, two 3-bed wards, and two 4-bed wards and are situated principally in the northeast and southeast wings, which are given over exclusively to patients. One private room is provided with its own complete bathroom, while all other patients' rooms have lavatory-and-toilet compartments, arranged generally with one compartment located between and serving two patients' rooms. One general bath is provided adjoining each of the two principal patients' corridors, so located that the doors are easily visible from the central nurses' station. At the end of each of these wings is a semi-circular solarium, from which ambulant and wheel-chair patients may pass via a gently sloping ramp to a pleasant garden located in the angle between wings.

In the southwest wing with a separate entrance is the out-patients' department, with waiting room, doctors' offices, and laboratory. Also in this wing are a few patients' rooms and a physiotherapy department which here is easily accessible to both out and in patients.

The ambulance driveway is in the west angle, with the entrance in the northwest wing where it is convenient to the street, but out of sight of most of the patients' rooms. On the inside nearby are rooms for accident cases, X-ray work, and the nursery. In a cul-de-sac at the end of the wing is the operating department, consisting of a main operating room, sterilizing and nurses' work rooms, scrub-up space, dressing room for doctors, a delivery room and a closet.

Behind the building proper is a kitchen wing which is connected with it by a service corridor forming one of the spokes from the central hub of the plan. Unlike the four main corridors this one has doors at its junction with the foyer, and beyond this point are found also a dining room for nurses, the service entrance to the building, stairs and clothes chutes to the small basement, cleaner's closet, and linen storage room. Although completely removed and isolated from the patients' wings the kitchen is sufficiently near to justify the omission of a separate serving kitchen for patients.

Because of the sparseness of settlement roundabout, the Morenci unit has been provided with a nurses' home in the form of a detached, one-story building having rooms for ten nurses, a living room, general baths, and a kitchenette.

The exterior walls of the Phelps-Dodge hospitals are built of load-bearing concrete tile, faced with four inches of tapestry brick. The walls are insulated against the concrete foundations to prevent the rising of dampness from the ground into the walls by capillary attraction and consequent discoloration of the brickwork, a potential danger in this excessively dry climate. To fend off the extreme heat of the Arizona sun the roofs have been given very broad eaves, and all ceilings are suspended and insulated with four inches of mineral wool. The roofs are framed with steel trusses, spanning generally from wall to wall but supported by steel columns in certain locations in the center of the plan. The finished roofing is of copper shingles applied to wooden sheathing. The main floor slab is of reinforced concrete.

On the interior the finish is in strict accordance with hospital tradition. Such spaces as the operating, sterilizing, and delivery rooms have terrazzo floors and tile wainscots, while the corridors and the patients' rooms have floors of linoleum, with plastered walls. The ceilings of all corridors, the foyer, nurses' station, utility room, and nursery are surfaced with acoustical tile to limit the travel of sound.

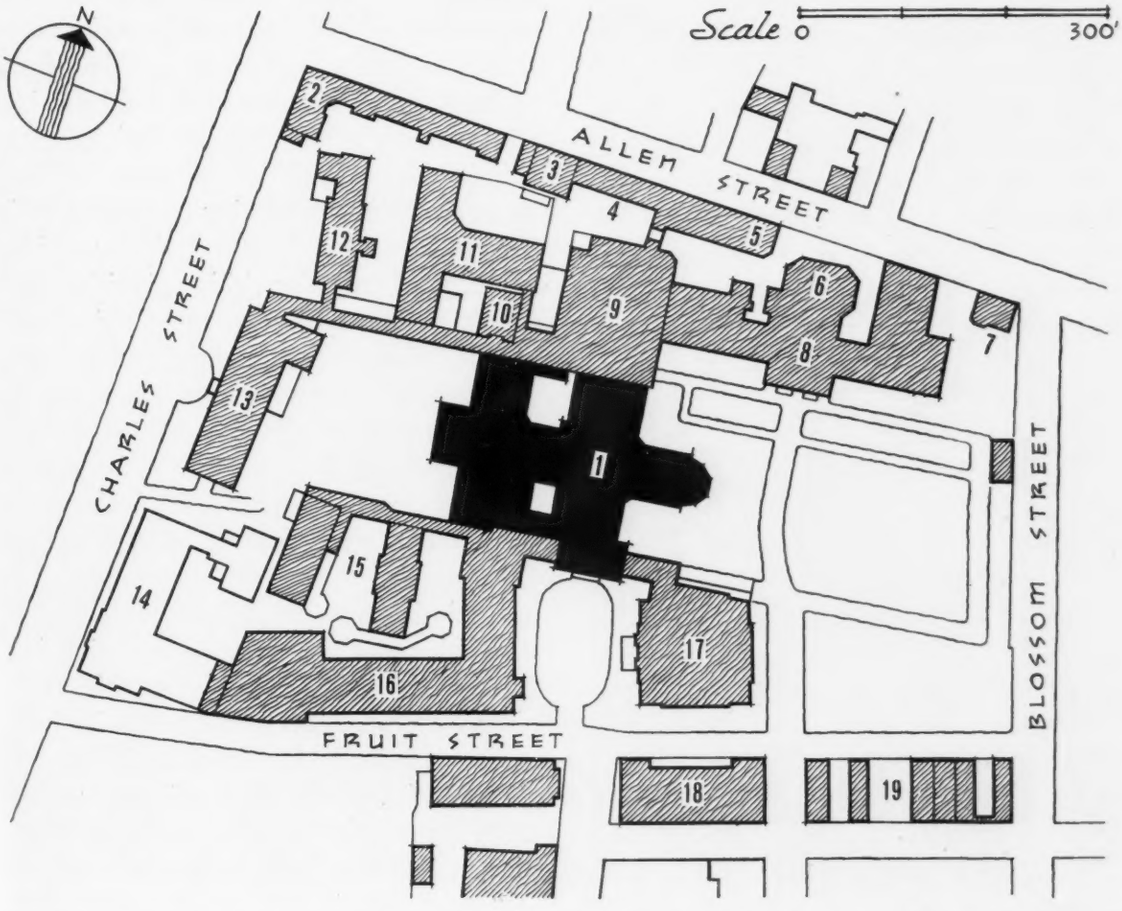
In furnishing and equipping these buildings the owners have made a distinct effort to leave nothing undone. The hospital equipment, including X-ray machines, sterilizers, kitchen equipment, and the many other forms of equipment and paraphernalia needed for hospital work are complete and of the latest types. The bedrooms, waiting rooms, and solaria have been furnished with care to create a home-like atmosphere, and the success of the effort is perhaps a key to the sincerity of this owner's interest in the welfare and good health of his employees.

Sigurd Fischer Photos

ADDITION TO MASSACHUSETTS GENERAL HOSPITAL IN BOSTON

LEGEND

1. G.R. WHITE BUILDING
2. THAYER NURSES HOME
3. ALLEN ST. BUILDING
4. PATHOLOGICAL BUILDING
5. POWER HOUSE
6. LAUNDRY
7. SUPT'S HOUSE
8. BULFINCH BLDG.
9. DOMESTIC BLDG.
10. CHAPEL
11. BAKER MEMORIAL
12. BRADLEE WARD
13. PHILLIPS HOUSE
14. MASS. EYE AND EAR INFIRMARY
15. WARDS
16. OUT-PATIENT BLDG.
17. MOSELEY MEMORIAL BLDG.
18. WALCOTT HOUSE, NURSES HOME
19. NURSES HOME



COOLIDGE, SHEPLEY, BULFINCH & ABBOTT, ARCHITECTS

Sigurd Fischer Photos

A VIEW FROM THE WEST AND A DETAIL OF THE SETBACKS AT UPPER LEVELS. SIMPLE MASSES AND FREEDOM FROM UNNECESSARY DETAIL MARK THE BUILDING AT ONCE AS CONTEMPORARY DESIGN

The George Robert White Memorial Building, designed by Coolidge, Shepley, Bulfinch & Abbott, was completed about a year ago as an addition to the facilities of the Massachusetts General Hospital in Boston. The new building is fourteen stories high, cruciform in plan, stepped back at the upper stories so that the general mass is broken up pleasantly into clean-cut forms. There are no cornices or exterior ornamentation, the architectural effect being gained by proportions, fenestration, and the color of the brick which is light gray, closely resembling the tone of the granite of the old Bulfinch Building nearby. By virtue of its size, simplicity, and position it dominates and unifies the entire hospital group.

The new building has made it possible to assemble the scattered surgical wards and bring them under one roof, with the facilities they use. At the same time it has resulted in the concentration of medical patients in the Bulfinch Building. Together, these two buildings will henceforth house most of the patients. The improved arrangement of facilities is expected to produce better care of patients than was possible before. Four of the plans are reproduced herewith, the first floor (devoted to administration, admissions, and accident cases), the third floor (containing operating rooms and their accessories), floor three-A (which provides viewing balconies for visiting physicians and medical students to observe operations and also contains offices and staff dressing rooms and a teaching amphitheater seating 100), and the fifth floor (which may perhaps be considered a typical floor for patients, with wards and semi-private rooms). This floor is for orthopedic and fracture cases.

The next four floors—sixth, seventh, eighth, and ninth—are for patients with general surgical conditions. In each east wing is a ward of 16 beds, divided by partitions into four 4-bed units, while each west wing has a similar ward of 16 beds, also divided into 4-bed units. Each south wing has eight single rooms for the care of very sick patients. Each wing has a large solarium.

The tenth floor is for urological patients and contains 27 beds. It has also two rooms for

cystoscopies and minor operations. The eleventh floor, containing 27 beds, is for the neurological and neurosurgical services, their combination having been found advantageous through experience.

On the twelfth floor there are 17 single rooms for the isolation of patients who have developed contagious diseases while in the hospital or who have some special condition requiring isolation. The penthouse above contains the telephone switchboard and automatic telephones on its first level and elevator and ventilating machinery above.

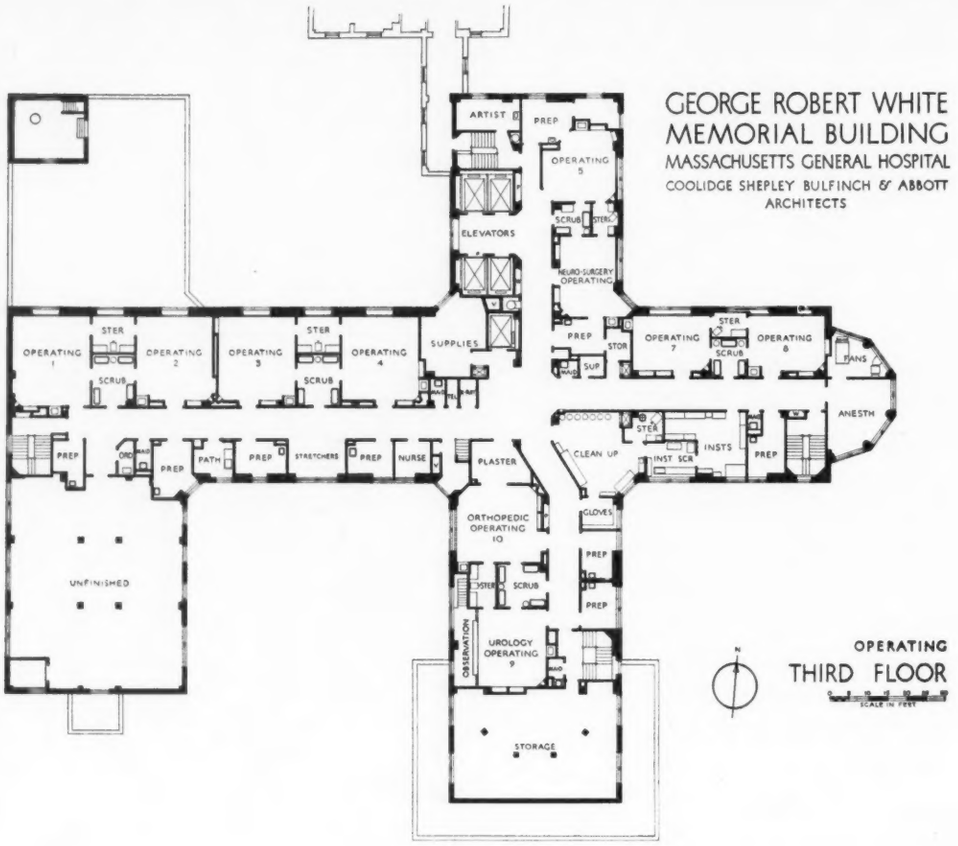
Returning now to lower levels we find on the second floor the X-ray department, serving the General Hospital and the Out-Patient Department. A one million volt X-ray generator, developed by the Massachusetts Institute of Technology, is used here for cancer therapy and for the treatment of patients from the Phillips House and Baker Memorial.

The basement contains kitchens for serving all patients in the general hospital as well as doctors, nurses, and employees.

The building is of fireproof construction and all materials were selected for durability and low maintenance cost. All ceilings are of sound-deadening material and are removable to permit servicing of pipes and electrical wiring. A pneumatic tube system with its central station adjacent to the Record Room quickly conveys records, messages, and even medicines to any floor.

Total cubage of building is 3,343,800 cubic feet, which, with a total cost of $2,239,569 (without architects' fee and pile foundations) makes the cubic foot cost $0.67. Patients' wards occupying part of the first floor and all of the floors from the fifth to the twelfth, inclusive, have a cube of 1,290,300 cubic feet and cost $982,434. The remaining 2,053,500 cubic feet, costing $1,563,534, provide space for machinery in the sub-basement, kitchens, dining rooms, offices, X-ray, operating rooms, and laboratories. Since there are 294 beds, the cost per bed, if the total cost is used, is $8,659, or if only the cost of that portion used for wards, $3,341. The proper cost per bed lies somewhere between these figures.

FROM THE EAST THE MASSES PILE UP SYMMETRICALLY INTO AN IMPOSING MODERN MONUMENT. THE DETAIL BELOW SHOWS THE OPERATION OF THE WINDOWS IN THE MANY-FACETED SOLARIA


GEORGE ROBERT WHITE
MEMORIAL BUILDING
MASSACHUSETTS GENERAL HOSPITAL
COOLIDGE SHEPLEY BULFINCH & ABBOTT
ARCHITECTS
ARTIST
PREP
OPERATING 5
ELEVATORS
SCRUB
STER
NEURO-SURGERY OPERATING
OPERATING 1
OPERATING 2
OPERATING 3
OPERATING 4
SUPPLIES
OPERATING 7
OPERATING 8
FANS
ANESTH
CLEAN UP
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PREP
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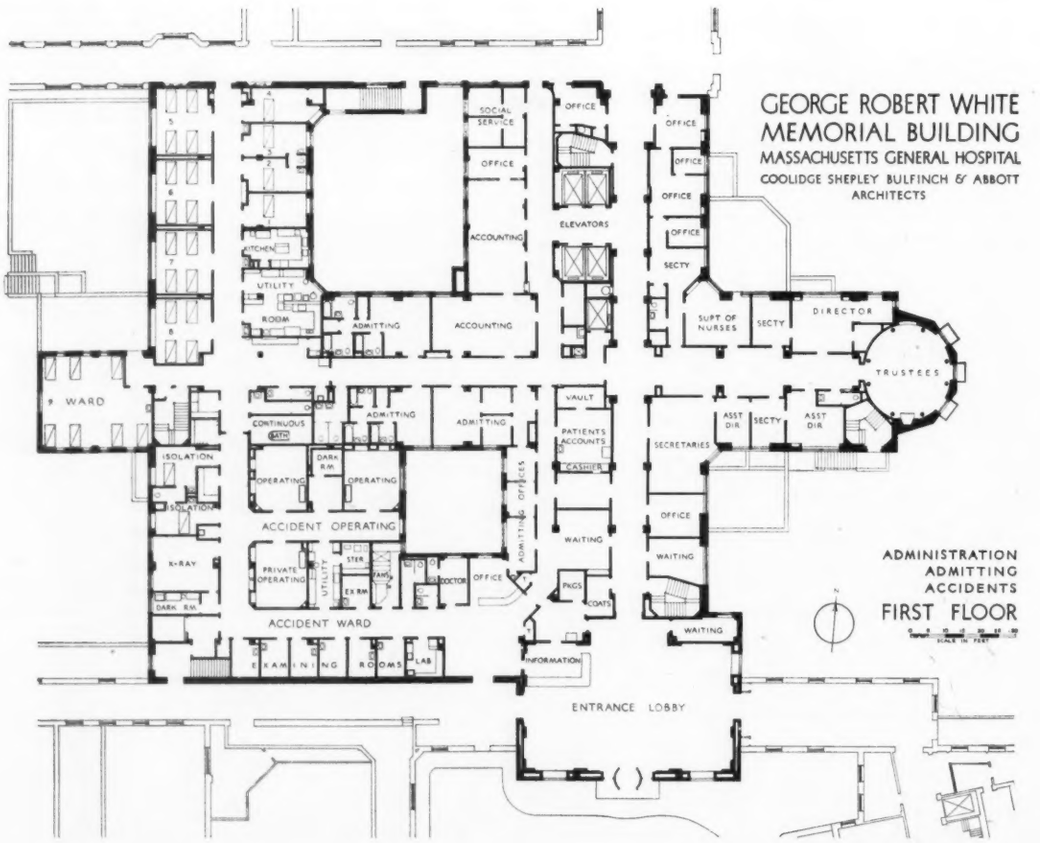
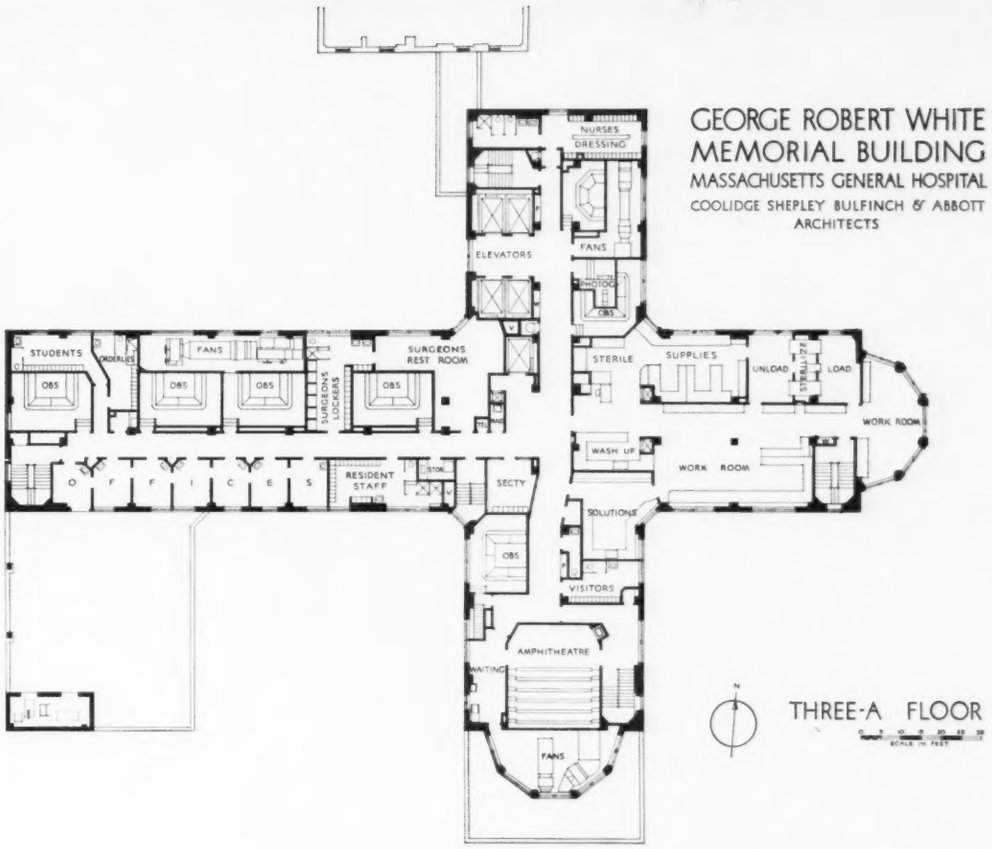
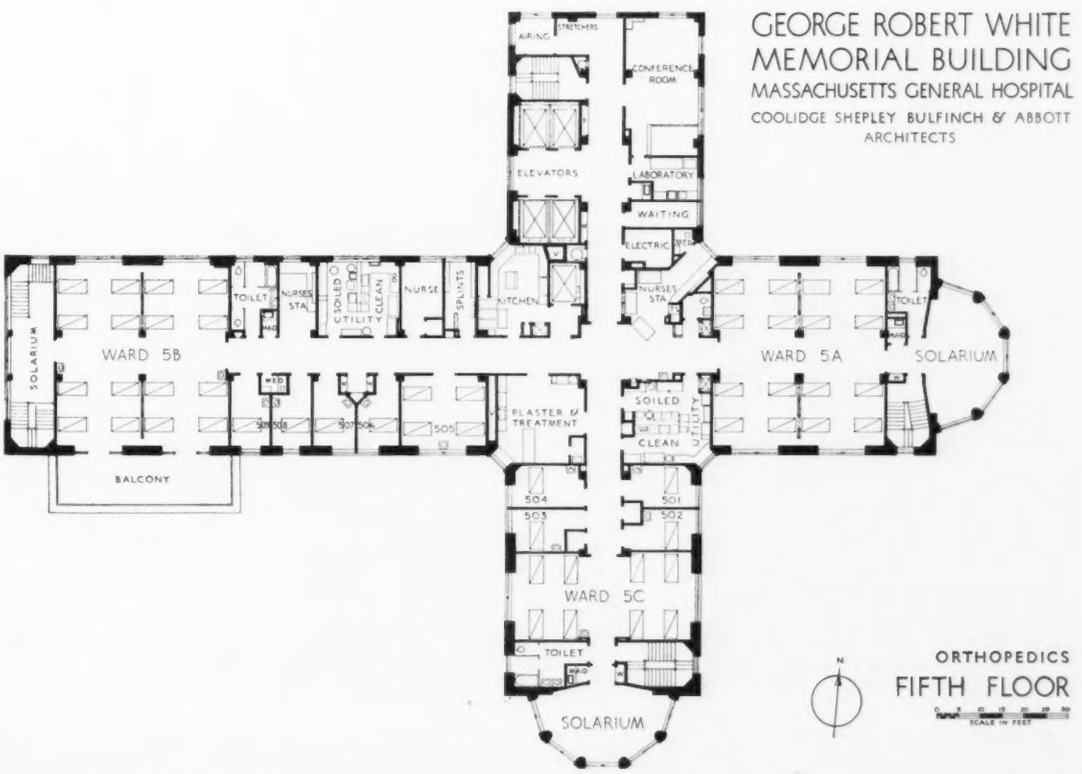
PREP
ORD
PATH
STRETCHERS
NURSE
PLASTER
ORTHOPEDIC OPERATING 10
GLOVES
UNFINISHED
OBSERVATION
UROLOGY OPERATING 9
STORAGE
OPERATING
THIRD FLOOR
SCALE IN FEET


GEORGE ROBERT WHITE
MEMORIAL BUILDING
MASSACHUSETTS GENERAL HOSPITAL
COOLIDGE SHEPLEY BULFINCH & ABBOTT
ARCHITECTS
SOCIAL SERVICE
OFFICE
ACCOUNTING
ELEVATORS
KITCHEN
UTILITY ROOM
ADMITTING
9 WARD
CONTINUOUS
ISOLATION
OPERATING
DARK RM.
ACCIDENT OPERATING
ADMITTING OFFICES
VAULT
PATIENTS ACCOUNTS
CASHIER
WAITING
X-RAY
DARK RM.
PRIVATE OPERATING
UTILITY
EX RM.
DOCTOR
PKGS
COATS
ACCIDENT WARD
EXAMINING ROOMS
LAB
INFORMATION
ENTRANCE LOBBY
SECTY
SUPT OF NURSES
DIRECTOR
TRUSTEES
ASST DIR
SECRETARIES
ADMINISTRATION
ADMITTING
ACCIDENTS
FIRST FLOOR
SCALE IN FEET



GEORGE ROBERT WHITE MEMORIAL BUILDING
MASSACHUSETTS GENERAL HOSPITAL
COOLIDGE SHEPLEY BULFINCH & ABBOTT ARCHITECTS



GEORGE ROBERT WHITE MEMORIAL BUILDING
MASSACHUSETTS GENERAL HOSPITAL
COOLIDGE SHEPLEY BULFINCH & ABBOTT ARCHITECTS

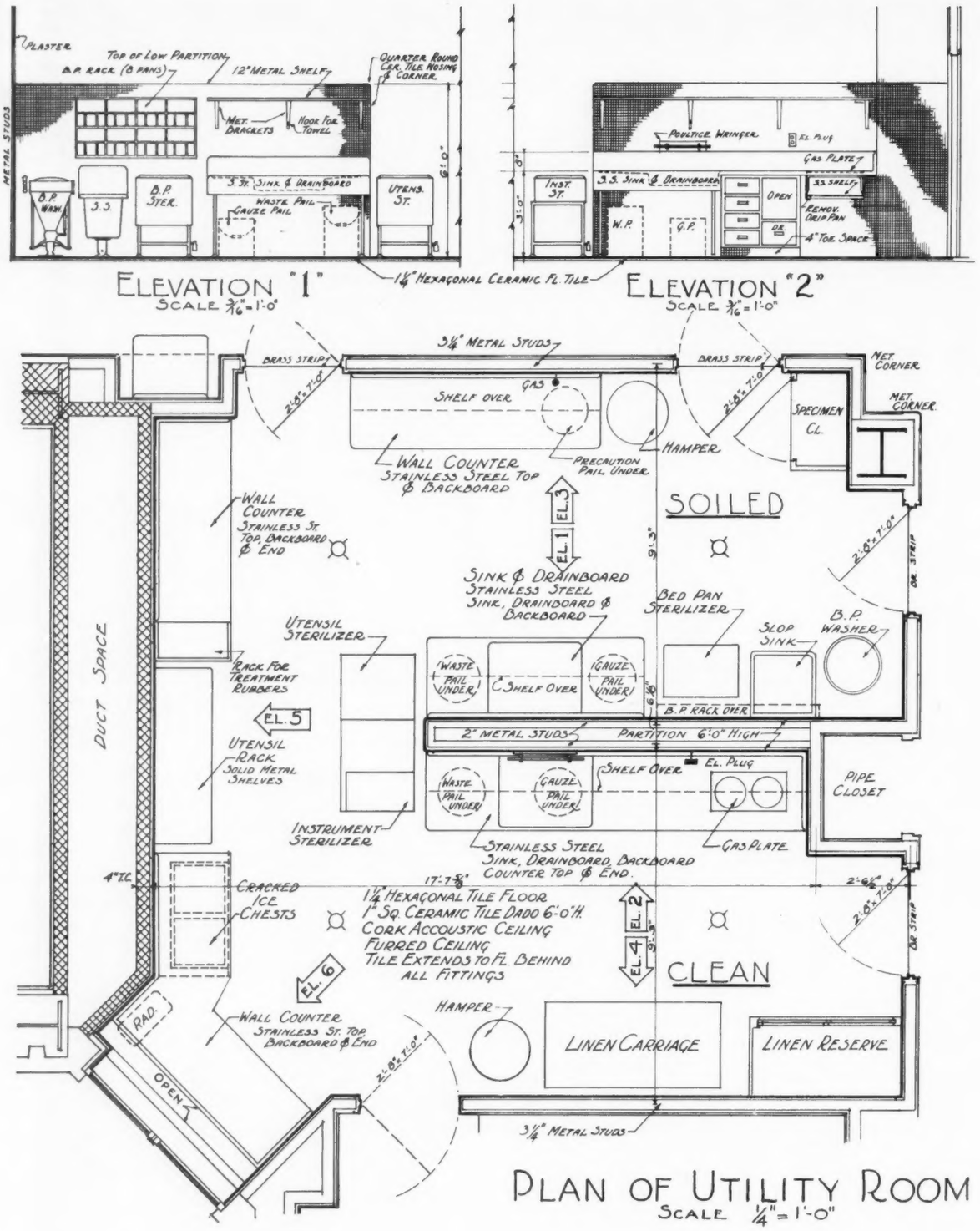
Sigurd Fischer Photos

ENTRANCE LOBBY, MASSACHUSETTS GENERAL HOSPITAL ADDITION

THE TRUSTEES' ROOM ON THE FIRST FLOOR IS ELLIPTICAL IN PLAN AND TERMINATES THE MAIN ADMINISTRATION WING ON THE FIRST FLOOR LEVEL, FORMING A BASE FOR THE GLAZED BAYS ABOVE

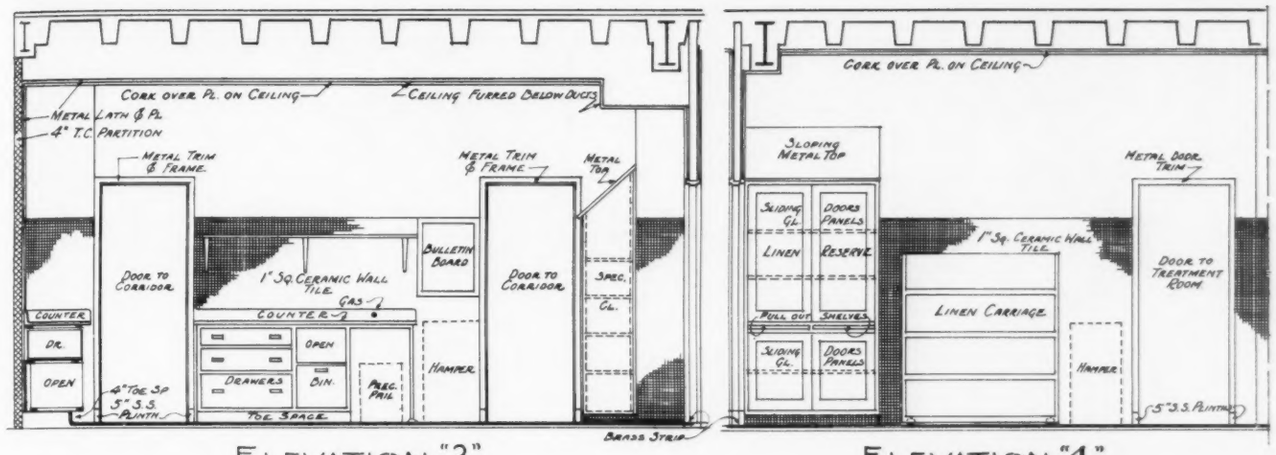
TREATMENT OF THE MAIN ENTRANCE LOBBY IS SIMPLE AND BEAUTIFULLY DETAILED. THE LOBBY CONTAINS AN INFORMATION DESK AND SEATING FOR VISITORS. TYPICAL CORRIDOR IS ILLUSTRATED AT THE RIGHT

COOLIDGE, SHEPLEY, BULFINCH & ABBOTT, ARCHITECTS



THE UTILITY ROOMS FOR THIS HOSPITAL ARE DIVIDED INTO TWO SECTIONS, CLEAN AND SOILED. THIS MAKES FOR BETTER NURSING TECHNIQUE AND PERMITS LINEN TO BE STORED IN THE CLEAN SIDE, WHICH SAVES STEPS FOR THE NURSES. ANOTHER CONVENIENCE LIES IN HAVING THE TREATMENT ROOM ADJOIN THE CLEAN SIDE OF THE UTILITY ROOM. PLACING OF THE UTENSILS WITHIN THE UTILITY ROOM OF A GIVEN HOSPITAL DEPENDS SOMEWHAT ON LOCAL HABITS OR TRADITION BUT IN GENERAL IS BASED ON THE SEQUENCE BEST ADAPTED TO SIMPLIFY THE NURSES' WORK. THE BED PAN WASHERS AND STORAGE RACK, FOR EXAMPLE, ARE COMMONLY PLACED JUST INSIDE THE DOORWAY ENTERING THE SOILED SIDE

ADDITION TO MASSACHUSETTS GENERAL HOSPITAL IN BOSTON



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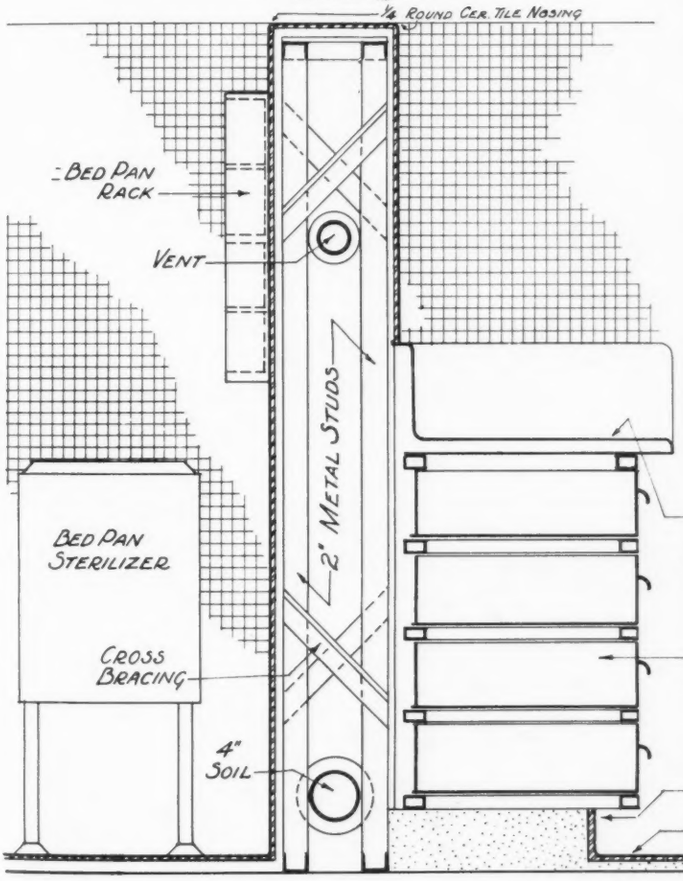
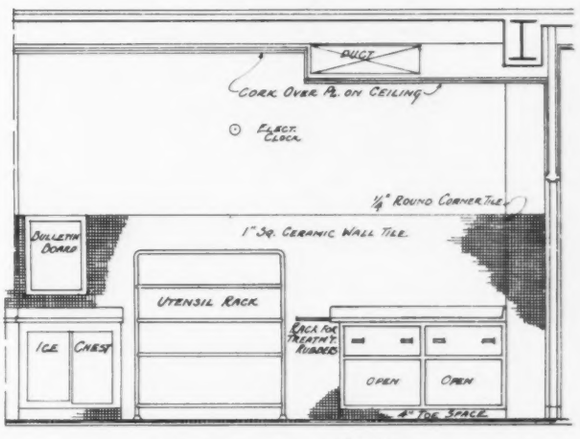
SCALE 3/16"=1'-0"

ELEVATION "4"
SCALE 3/16"=1'-0"



SECTION THRU LOW PARTITION
SCALE 3/4" = 1'-0"



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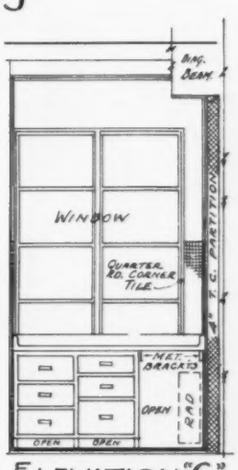
SCALE 3/16"=1'-0"

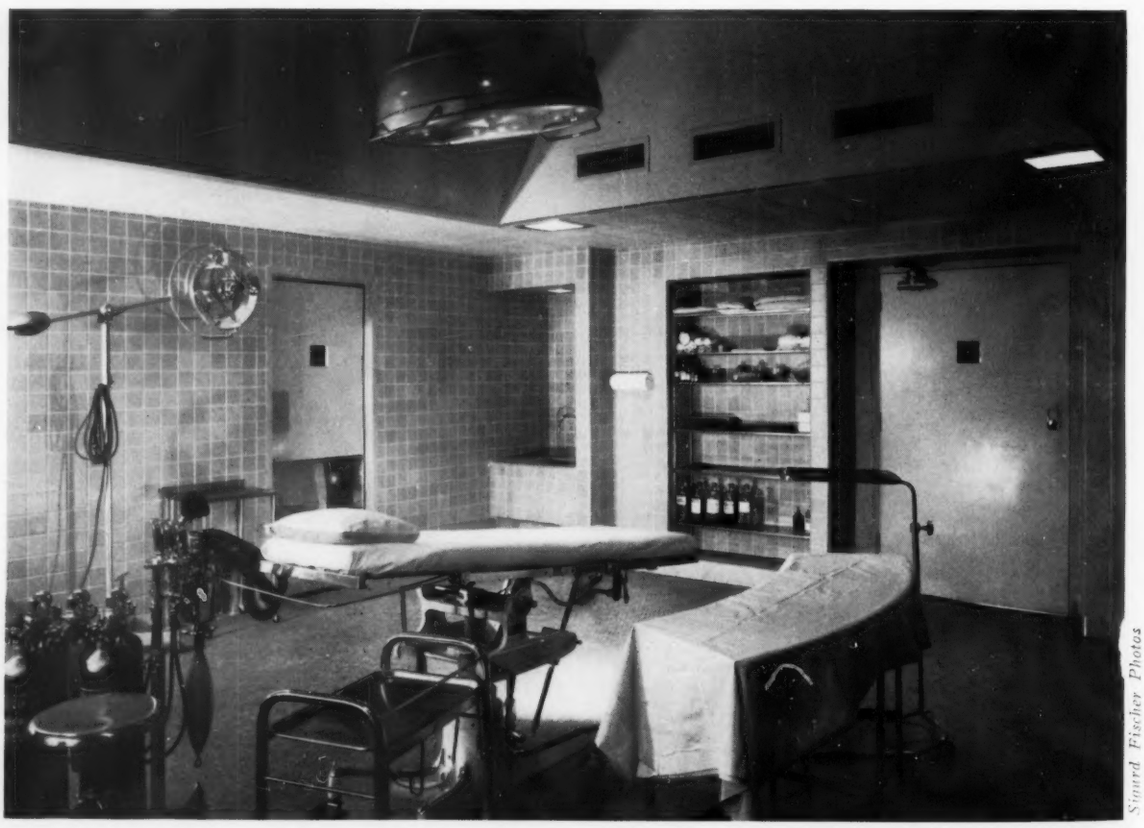


ELEVATION "6"
SCALE 3/16"=1'-0"

THE FIRST DIVISION OF THE UTILITY ROOM INTO SOILED AND CLEAN, SO FAR AS WE KNOW, WAS DEVELOPED FOR THE LAKESIDE HOSPITAL IN CLEVELAND ABOUT TWELVE YEARS AGO BY COOLIDGE, SHEPLEY, BULFINCH & ABBOTT. THIS PRACTICE WAS CONTINUED IN THE NEW YORK HOSPITAL AND IN ALMOST EVERY HOSPITAL THEY HAVE SINCE DESIGNED. IN THE MASSACHUSETTS GENERAL HOSPITAL DUPLICATE UTILITY ROOMS ARE PROVIDED ON THE 6TH, 7TH, 8TH, AND 9TH FLOORS BUT IT IS THE OPINION OF THE ARCHITECTS THAT ONE IS SUFFICIENT TO A FLOOR OF 40 BEDS. THE HARTFORD GENERAL HOSPITAL, NOW BEING DESIGNED, WILL HAVE FLOORS SIMILAR IN ARRANGEMENT, BUT WITH ONE UTILITY ROOM

COOLIDGE, SHEPLEY, BULFINCH & ABBOTT, ARCHITECTS

VIEWS OF TWO OPERATING ROOMS SHOW THE GENERAL ARCHITECTURAL TREATMENT AND THE DISPOSITION OF LIGHTING AND SURGICAL EQUIPMENT. ALL OPERATING ROOMS ARE AIR-CONDITIONED. RECESSED SHELVING FOR INSTRUMENTS AND SUPPLIES ARE PLACED FOR CONVENIENCE. EACH PAIR OF OPERATING ROOMS IS SEPARATED BY SCRUB AND STERILIZING ROOMS AS MAY BE SEEN FROM THE PLAN ON PAGE 694



Sigurd Fischer Photos

ADDITION TO MASSACHUSETTS GENERAL HOSPITAL IN BOSTON

RECENT EXPERIENCE IN HOSPITAL LIGHTING

BY ISADORE ROSENFIELD AND JOSEPH BLUMENKRANZ*

The fundamentals of hospital lighting involve considerations of latitude, orientation, grouping of buildings, relation to buildings surrounding the site; size of windows in relation to floor area, depth of room, ceiling height, relation to balconies, intensity of light required, and many, many other factors. These would be in the realm of natural illumination—a worthy subject which, it would seem, still has much room for clarification. There are also considerations which lie in the zone between natural and artificial illumination. This subject has probably never received serious consideration in hospital literature, although it is well established in the field of industry, schools and museums.

This article will concern itself with the problem of artificial illumination and instead of dealing with fundamentals will only touch on certain experiences and demonstrations of the past few years in the Department of Hospitals, City of New York.

WARD LIGHTING

Criteria

Without making an *a priori* assumption that traditional ward lighting is wrong, it was decided first to establish certain standards for comparison and certain criteria for good illumination, on the basis of which a comparative experiment could be conducted.

It was determined that good hospital lighting should satisfy the following requirements:

a. It should deliver the maximum of light where it is most needed. In the case of wards the focal point is at the head of the bed.

b. It should be so situated or masked as to produce no glare.

c. It should preferably be made entirely of metal and if glass is to be used it should be so arranged as not to form a hazard to patient or to attendant when relamping or cleaning the globe.

d. It should not be a dust collector or at least it should be easily accessible for cleaning.

e. It should be economical with respect to initial investment as well as to maintenance.

With these criteria in mind various things were tried.

Experiments

A. The first type of lighting tried was the traditional, consisting of diffusing globes suspended from the ceiling and fixed in the usual location in the aisle of the ward. (Where ceilings are low in this type of lighting the hanging stem is omitted and the globe or fixture is snug against the ceiling.) This method of lighting was found, when checked against the criteria listed above, to have the following shortcomings:

(a) The fixture being in the middle of the room, it delivers the strongest light on the floor in the middle of the room, where least needed, and the weakest at the perimeter where the beds are and where it is most needed. This is uneconomical and inefficient. In addition, it means that when reading a patient finds the reading matter in the shade and the dark book or newspaper silhouetted against the bright globe. For the purpose of examining a patient the general light is usually too weak and an auxiliary portable light must be employed.

(b) It produces glare and is particularly fatiguing to patients who by virtue of circum-

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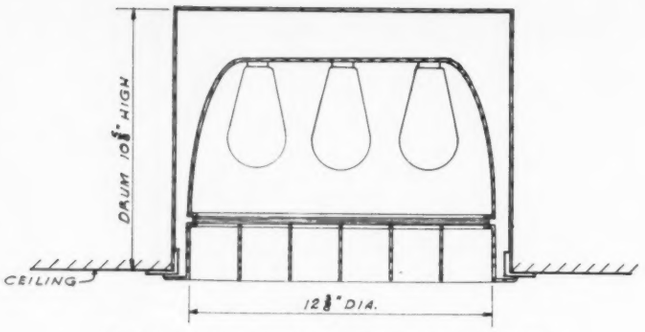
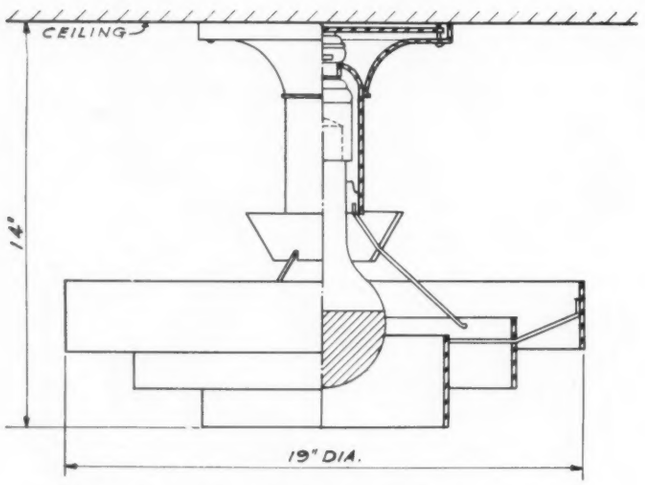
* *This article was written in collaboration with Thomas H. Creighton, Martin G. Dobler and Albert I. Gould. Experiments conducted by the Department of Hospitals with the assistance of the Department of Water Supply, Gas and Electricity and the Department of Public Works. Illustrations drawn by Arthur C. Creighton. Isadore Rosenfield, formerly Senior Architect in the Department of Hospitals, is now Supervising Architect in the Department of Public Works. Joseph Blumenkranz is Senior Architect of the Department of Hospitals. Thomas H. Creighton is Assistant Senior Architect of the Department of Hospitals. Martin G. Dobler and Albert I. Gould are Electrical Engineers in the Department.*



RECESSED CYLINDRICAL METAL LOUVRED FIXTURE.

FIGURE 1



CONCENTRIC RING TYPE, ALL METAL FIXTURE.

FIGURE 2

stances are compelled to look at the glowing globe for long periods.

(c) The bulk of the fixture consists of the glass globe, which involves frequent breakage and replacement and a considerable hazard in connection with cleaning and replacement of bulbs from a high stepladder. Replacement of bulbs and cleaning of the fixtures usually involves two persons, one on the ladder and one holding the ladder.

(d) Having shoulders, the fixture is a dust collector.

B. The next experiment tried was with a fixture consisting of a cylindrical metal box surface-mounted on the ceiling (Figure 1). To avoid glare a series of aluminum louvers were placed at the bottom. This fixture was not scientifically designed for distribution and consequently delivery was very poor. Because the ceiling received no light, contrasted with the bright aluminum louvers, the room appeared dark and gloomy. To relamp such a fixture it was necessary to climb a ladder.

C. Another experiment was conducted in which a louvered fixture was used, scientifically designed so that its distribution curve is known (Figure 2). It is entirely of metal; it illuminates the ceiling, thus dispelling gloom; it requires no cleaning and it can be relamped by a pole from the floor. Its shortcomings are relative inefficiency as to output compared with the next type to be described, and the fact that the concentric enameled rings produce a certain amount of glare.

D. The final experiment was based on the idea that ward lighting criteria might be better met if the source (the fixture) were not at the ceiling at all, but somewhere between the ceiling and the floor, preferably just above eye level. With the Rigs ward which is now employed as general practice by the City it was thought that the source (the fixture) should be placed on top of the screens which separate the beds into groups or at a similar height on the wall when the head of the bed is against the wall. The screens being about 7′ and the ceiling usually about 11′ high, the distance between the reflectors and the ceiling approximates 4′. The fixture in this case consists of a scientifically designed commercial reflector covered by a diffusing sheet of glass (Figure 3). The reflectors, placed on top of the screen or mounted on the wall, are suitably attached to it. This type of lighting satisfies requirements in the following respects:

(a) By virtue of being located immediately in the back of the patient's head, the light is ideal for reading and most examinations of the patient. It illuminates the bed more than the aisle and floor space beyond.

(b) Being slightly above the eye level, the source of the light is not obvious. The ceiling serves as a large reflecting area, causing a maximum of diffusion and low brightness. Thus glare and the attending fatigue are eliminated. The effect in the room is even, well-distributed light, creating an atmosphere of soothing quiet.

(c) The glass being held in a hinged frame, the attendant does not have to hold it in his hand while relamping, which becomes an easy process.

(d) The glass cover prevents dust from getting into the reflector, and the only cleaning involved is wiping of the glass, which is readily accessible by stepping onto a stool or chair.

(e) The most amazing thing, however, is its economy. Indirect or semi-direct lighting of the usual kind has always been known to be inefficient with respect to proportion between wattage and candlepower output at the required level. In this case, however, as shown by the accompanying table, better light was obtained with less wattage than with any of the systems tried.

The demonstrations were made in a standard 24-bed Rigs ward (Figure 4) and the readings were taken three feet from the floor. Types A, B and C fixtures were mounted in the traditional location in the aisle of the ward.

In the case of the totally indirect lighting from on

top of the screens (type D) fluorescent units were also tried. The wattage required was much less than with ordinary incandescent lighting from the same position, and the effect was of quiet beauty.

Conclusions

The fixtures discussed under A, B and C do not accomplish the desired results outlined under "Criteria."

The method and the fixture described under D demonstrates a fulfillment of all of the above-mentioned criteria, including economy. The concomitant of economy in current consumption is, among other things, a reduction in the heat generated by the fixtures, which reduces the problem of maintenance of proper room temperatures.

Therefore this last method was adopted as a standard method for ward lighting. It is, however, imperative that for good results a distance of between 3′ to 4′ be obtained between reflector and ceiling; furthermore the ceiling surface should have good reflecting qualities.

While the experiments were conducted in a Rigs ward, this indirect lighting may well be adopted for wards in which the beds are placed circumferentially around the room; in these the reflectors would be mounted on brackets, against the walls in back of the beds. This assumption is made because the criteria for proper illumination first above mentioned apply with equal weight to the several types of wards, regardless of the disposition of beds. For night lighting recessed fixtures, about 18″ above the floor, so spaced as to illuminate all main aisles in the wards, are essential.

CORRIDOR LIGHTING

Proper lighting of corridors, which are the main circulation arteries of the hospital, is also important and should be integrated with the lighting of the wards.

In many instances the partitions between corridors and wards contain large areas of clear glass. Thus, as far as visibility is concerned, the corridor becomes an integral part of the ward. Consequently some of the criteria which govern proper ward lighting apply here as well. In such instances reflectors similar to those adopted for the wards would be mounted at proper height on the partition which separates the corridor from the ward, with the light thrown against the ceiling. Obviously the intensity of illumination should be less than that of the wards, just as the intensity in the aisles within the wards should be less than that at the patient's bed.

Where corridors are not contiguous to wards, ceiling mounted direct lighting fixtures may be used, if economy so dictates. In no instance, however, should the criteria for proper lighting, as described under "Ward Lighting," be ignored. The oblong shape of corridors suggests that fixtures which distribute the light in a directional rather than circumferential manner should be chosen for the sake of uniform illumination as well as for economy of maintenance. An asymmetric light-distribution curve is therefore a requisite.

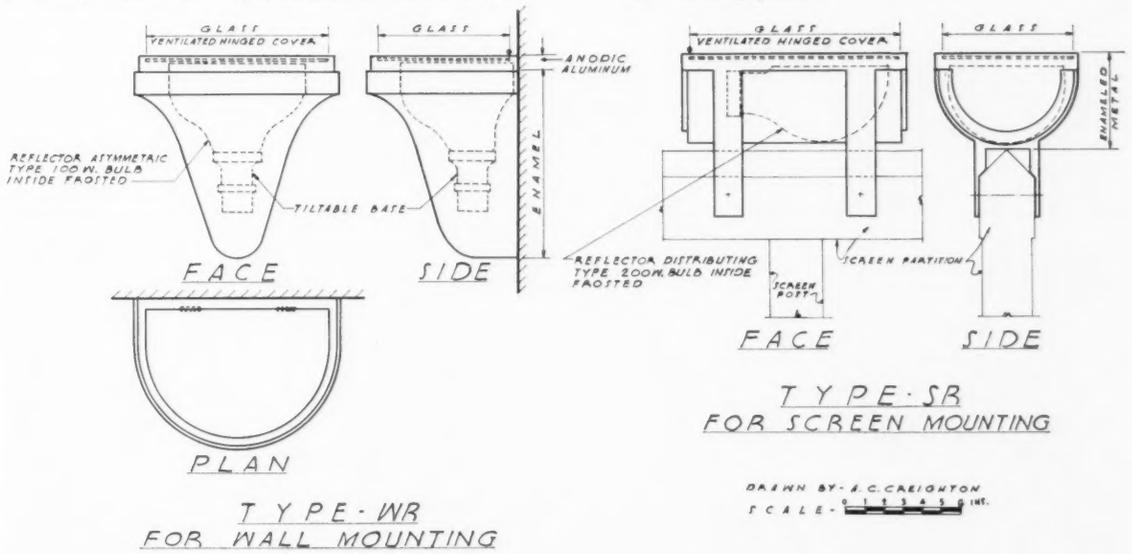
Night lighting, similar to that in wards, should be provided in the corridors.

LABORATORY LIGHTING

In the case of laboratories it was found that traditional lighting consists of a globe suspended from the ceiling, or an ordinary disc reflector likewise hung. In both cases the outlets are frequently over the aisles instead of over the tables. When placed over the tables, the source of light is generally within sight of the worker, causing both eyestrain and discomfort from heat.

The following requisites were assumed for proper laboratory lighting:

(a) Maximum intensity of illumination on the working plane.



STANDARD ASSEMBLY DETAILS OF INDIRECT LIGHTING FIXTURES FOR WARDS

FIGURE 3

COMPARATIVE METHODS OF WARD LIGHTING

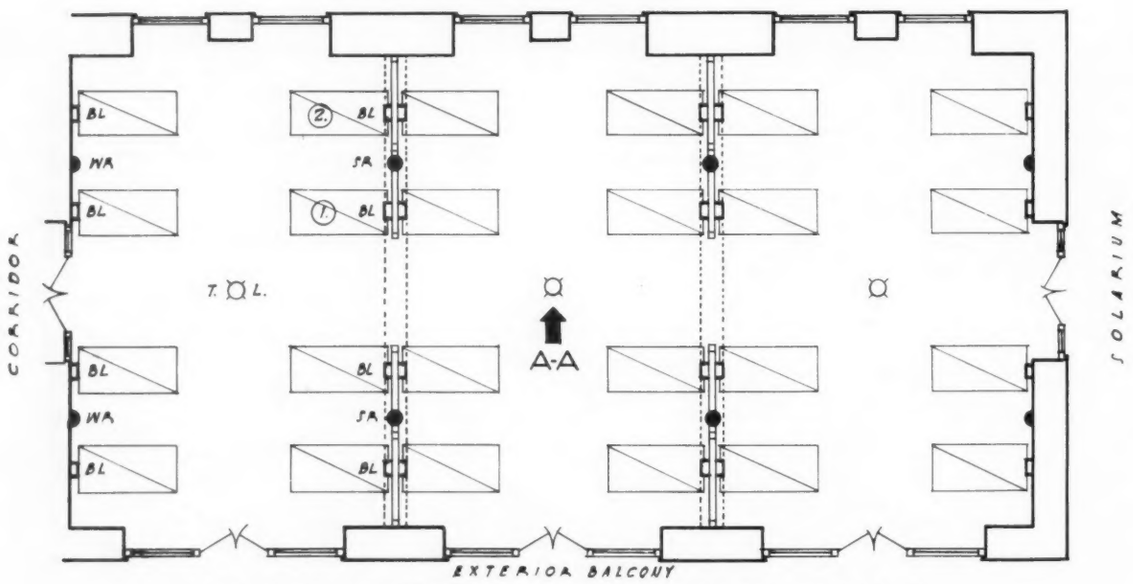
READINGS WERE TAKEN AT CENTER OF MATTRESS UPON WHITE SHEET
HEIGHTS - BED 2'-10" • PARTITION 7'-4" • CEILING 11'-2"±
COLOR - CEILING, WHITE • WALLS, LIGHT BUFF.
DISTANCE BETWEEN BEDS 3'-6" • FROM WALL 2'-2"

NOTE: ALL READINGS WERE TAKEN WITH BEDSIDE LAMPS TURNED OFF

EXPERIMENT	FIXTURES	HEIGHT ABOVE FLOOR	NUMBER OF FIXTURES IN WARD	WATTS IN EACH FIXTURE	TOTAL WATTS	WATTS PER SQ FT. OF FLOOR		FT. CANDLES AT CENTER OF BED WITH BEDLIGHTS OFF		REMARKS
						GENERAL ILLUMINATION	GENERAL PLUS BEDLIGHT	BED #1	BED #2	
A	PENDANT FIXTURE T. GOLDEN GLOW GLOBE	8'-6"	3 T. GENERAL ILLUMINATION	300	2340	0.44	1.14	2	1	GENERAL ILLUMINATION WITH BEDLIGHTS OFF WAS SPOTTY. INDIVIDUAL BEDSIDE LAMPS REQUIRED FOR EXAMINATION OF PATIENTS, FOR OCCASIONAL READING, ETC.
			24 BL BEDLIGHTS	60						
B	METAL LOUVRED FIXTURE L.	11'-2"	3 L. GENERAL ILLUMINATION	300	2340	0.44	1.14	TOO DARK TO REGISTER READING ON PORTABLE METER		GENERAL ILLUMINATION WITH BEDLIGHTS OFF WAS ENTIRELY UNSATISFACTORY. BEDLIGHTS WERE REQUIRED AS COMPLEMENT TO GENERAL ILLUMINATION AS WELL AS FOR EXAMINATION, READING, ETC.
			24 B BEDLIGHTS	60						
C	CONCENTRIC RING FIXTURE	10'-4"	GIVEN NO CONSIDERATION DUE TO GLARE REFLECTED FROM RINGS							
D	INDIRECT REFLECTOR WR SR	7'-4"	4 SR	200	1200	0.58		2.5	2.5	GENERAL ILLUMINATION VERY SATISFACTORY. NO ADDITIONAL INDIVIDUAL BEDSIDE LIGHTING WAS REQUIRED FOR EITHER EXAMINATION, OCCASIONAL READING, ETC.
			4 WR	100						

LEGEND

T. = TRADITIONAL PENDANT FIXTURE
L. = LOUVRED CEILING FIXTURE
WR. = WALL HUNG INDIRECT REFLECTOR
SR. = INDIRECT REFLECTOR MOUNTED ON SCREEN
BL. = INDIVIDUAL BEDSIDE LAMP



PLAN OF TYPICAL 24 BED WARD

DRAWN BY - A.C. CREIGHTON
SCALE - 0 1 2 3 4 5 6 FT.

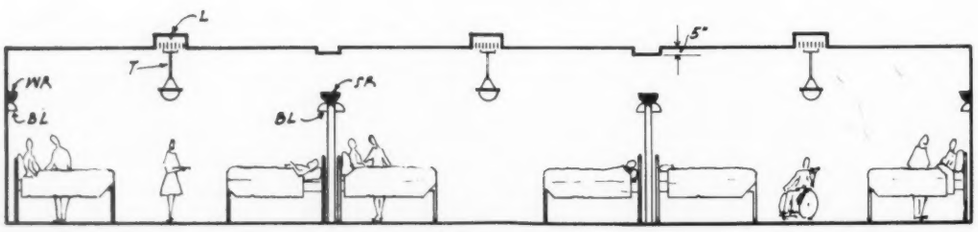


FIGURE 4

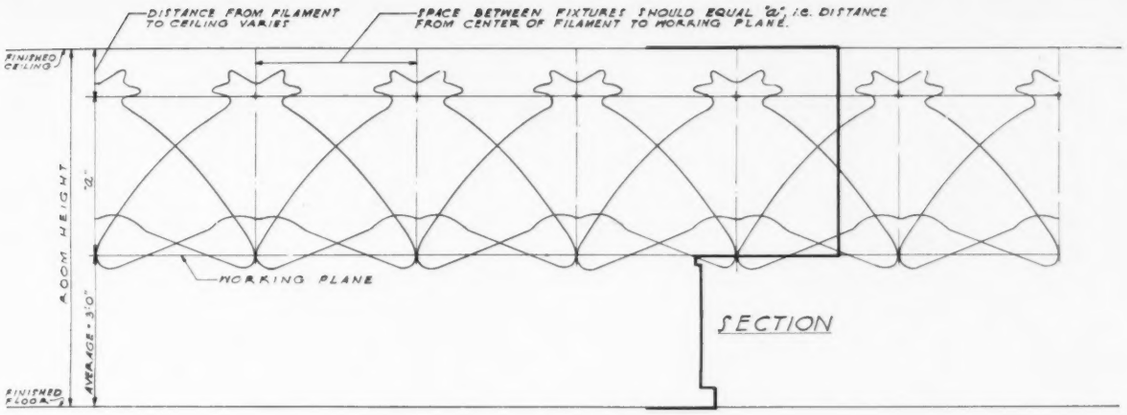


DIAGRAM
NO SCALE

NOTE
WATTAGE VARIES WITH DESIRED INTENSITY OF ILLUMINATION AT WORKING PLANE. FIXTURES PLACED DIRECTLY OVER WORKING PLANE.

LIGHT DISTRIBUTION CURVE OF STANDARD LABORATORY DIRECT PRISMATIC TYPE FIXTURE, SHOWING DESIRABLE SPACINGS OF FIXTURES

FIGURE 5

(b) Avoidance of disturbing shadows on the working plane.
(c) The source of light out of sight of the worker.
(d) Maximum efficiency for the sake of economy, which in turn implies a minimum of heat generated.

It was concluded that of all the fixtures tried, the one meeting laboratory requirements most satisfactorily is of a semi-direct type with a prismatic glass reflector-refractor. It must be understood, however, that the light distribution curve of this fixture is such that the location, spacing and mounting height must be carefully studied in order to obtain a uniform intensity of illumination at the desired working plane (Figure 5).

As is evident from the figure, the areas directly under the fixture receive less light than those around it; it is thus necessary to space the fixtures so as to cause an overlap of the high with the low illuminated areas. This overlap is also helpful in eliminating the casting of sharp shadows by objects directly under the fixtures. This being the case the fixtures may be mounted directly above the working plane. It is also possible to mount them at sufficient height so that the source of the illumination is out of sight, and so that little or no discomfort results from heat generated by the fixture.

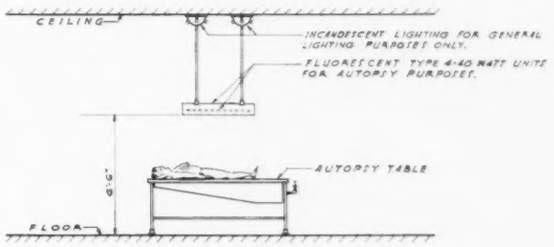
AUTOPSY LIGHTING

In autopsy work a high level of illumination is required. The usual arrangement involves the burning of 750 watts immediately over the heads of the workers. This arrangement causes the emanation of much heat which not only produces direct discomfort, but likewise accelerates the emanation of odors. After demonstrations and adjustments in cooperation with manufacturers a fluorescent type of fixture was developed. This consists of four 40-watt tubes mounted under a single reflecting canopy. Stems supporting the reflector which hold the tubes are also equipped with three 60-watt ordinary incandescent lamps. For cleaning or otherwise for general illumination the latter lamps only are turned on (Figure 6).

The virtue of this fluorescent fixture for this purpose lies in the fact that proper illumination is obtained with only 160 watts. This, as well as the fact that fluorescent bulbs generate comparatively very little heat, make it superior to the incandescent.

OPERATING ROOM LIGHTING

The design of lighting fixtures for operating rooms now involves several factors other than illumination. The recognized necessity for purifying the air of air-borne bacteria has been shown by tests to make desirable both air conditioning and air sterilization by means of ultraviolet lamps. In addition, tests have indicated that air conditioning, by raising the humidity, at least decreases the possibility of explosions of anesthetics by making it less likely



ELEVATION

DRAWN BY - A.C. CREIGHTON
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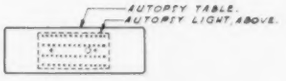
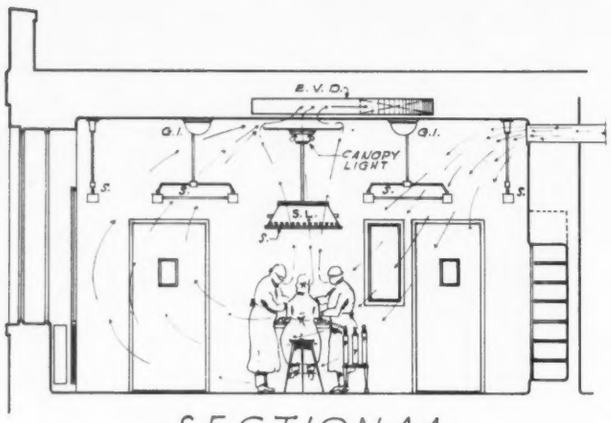


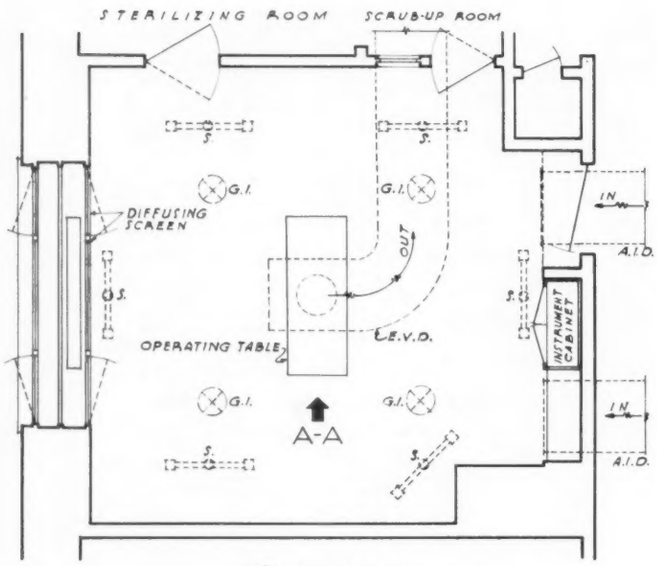
PLAN

LIGHTING OVER AUTOPSY TABLE

FIGURE 6



SECTION A-A



PLAN
OPERATING ROOM

AIR-CONDITIONING LIGHTING AND STERILAMP LAYOUT

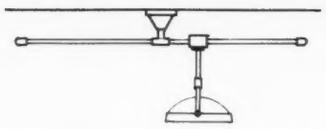
LEGEND

S. = STERILAMP
S.L. = SURGICAL LIGHT
G.I. = GENERAL ILLUMINATION
A.I.D. = AIR INTAKE DUCT
E.V.D. = EXHAUST VENT DUCT

DRAWN BY - A.C. CREIGHTON
SCALE - 0 1 2 3 4 5 6 FT.

FIGURE 7

that objects in the room would hold a static charge of electricity. Instead of treating these various



SWIVEL TRACK TYPE FIXTURE.

FIGURE 8

factors as separate problems, it is more reasonable to integrate the air conditioning and air sterilization with proper operating room lighting.

This approach was followed in the fixtures designed for a recently completed hospital. Two principal factors were taken into consideration:

(a) The proper arrangement of mercury vapor lamps which radiate ultraviolet rays for the purpose of destroying air-borne bacteria.

(b) Properly directed air movement so as not to negate, but rather to complement the benefit derived from the action of sterilamps. This implied that the air current at the operating table had to be upward away from the patient so that any bacteria not destroyed by the rays should be carried away in the upstream flow of exhaust air, rather than downward on to the open wound.

In order to accomplish the above, a scialytic sterilamp was specified. This consists of a dome type surgical lighting unit with a circular sterilamp unit attached to it. The dome varied in this case from the usual type, in that it had an open top, which permits the upward flowing air to pass by the sterilamps proper (Figure 7).

Auxiliary sterilamp units were provided on the ceiling in addition to the one on the surgical fixture in order to lower the level of contamination of the air in the entire operating room.

There has been no opportunity as yet to determine whether or not the swivel track mounted type of surgical fixture as illustrated (Figure 8) would be adaptable to air conditioning coupled with sterilamp installations.

* * * *

The experiments cited resulted in a marked improvement in hospital lighting; however, they are not regarded as conclusive. On the contrary, due to the ever-changing nature of illuminants, it is recognized that only by continuous experimentation and research can constant progress be assured.

AMERICAN FIELD SERVICE UNITS

BY ADDISON ERDMAN

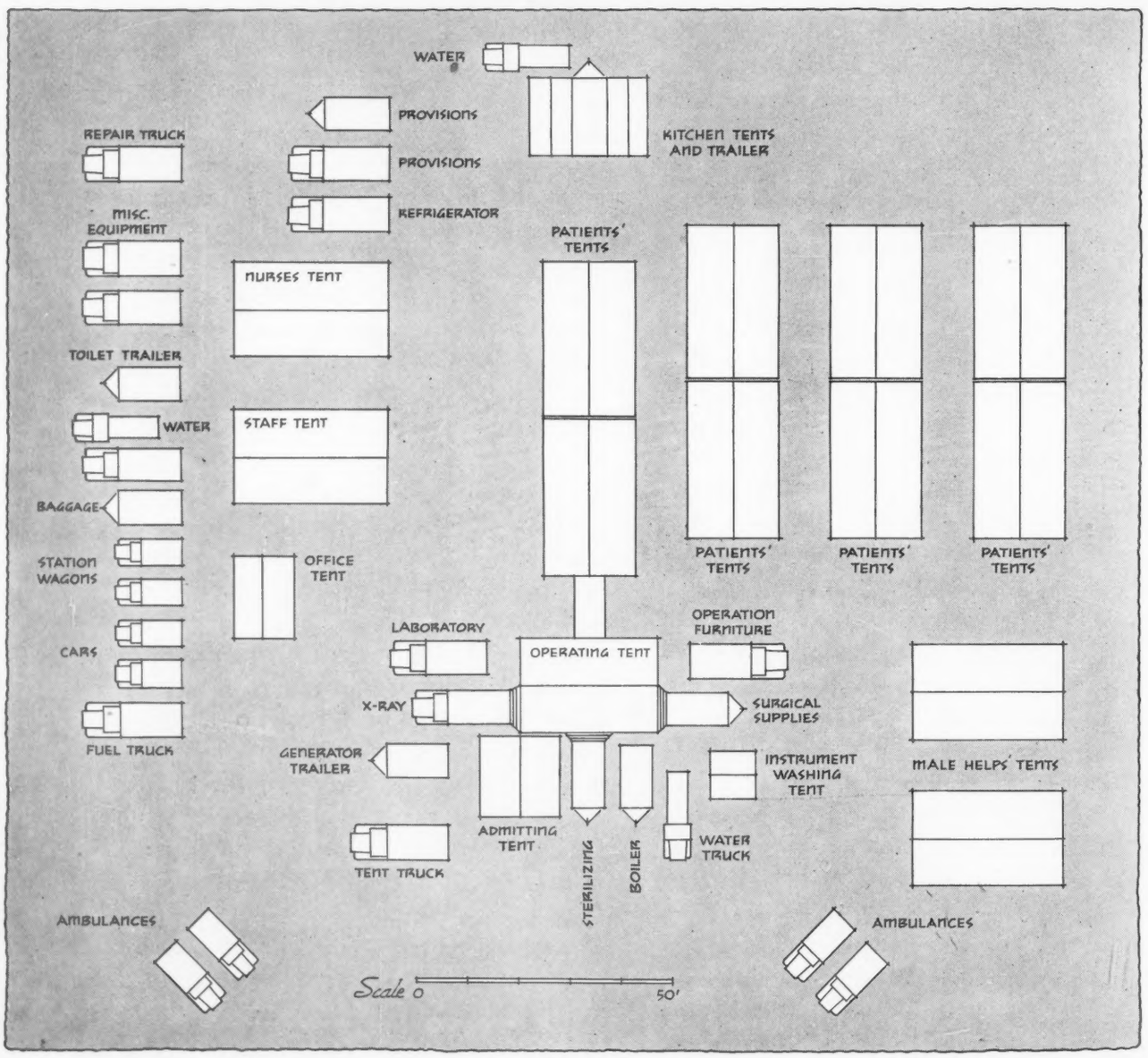
With the collapse of France in June, making it impossible to send any more ambulance units to the European continent, James Wood Johnson, President of the American Volunteer Ambulance Corps, conceived the idea of shipping some mobile hospital units to alleviate the terrible shortage of medical service for civilian refugees in France; along the lines of the mobile surgical units designed by the U. S. Engineer Corps under the direction of Dr. Percy Turnure towards the end of the first World War, five of which were shipped to France and received with enthusiasm just before the Armistice. Dr. Alexis Carrel, who had arrived here in the spring to coordinate the work of sending to France medical aid for refugees, became interested in this project and asked Charles Butler to act as architect and to work out the general design and details of the units. Mr. Butler had experience in 1914-18 as Hospital Expert, first to the French Ministry of War and later to the U.S.A. General Staff and the U. S. Housing Corporation and the Engineer Depot, preparing plans for military hospitals, 1000-bed Overseas Hospitals and a War Demonstration Hospital for Dr. Carrel, erected at the Rockefeller Institute. John W. Harris Associates were called upon to act as coordinators and purchasing agents, because of their knowledge of hospital construction and of building abroad, and because of Mr. Harris' interest in this project.

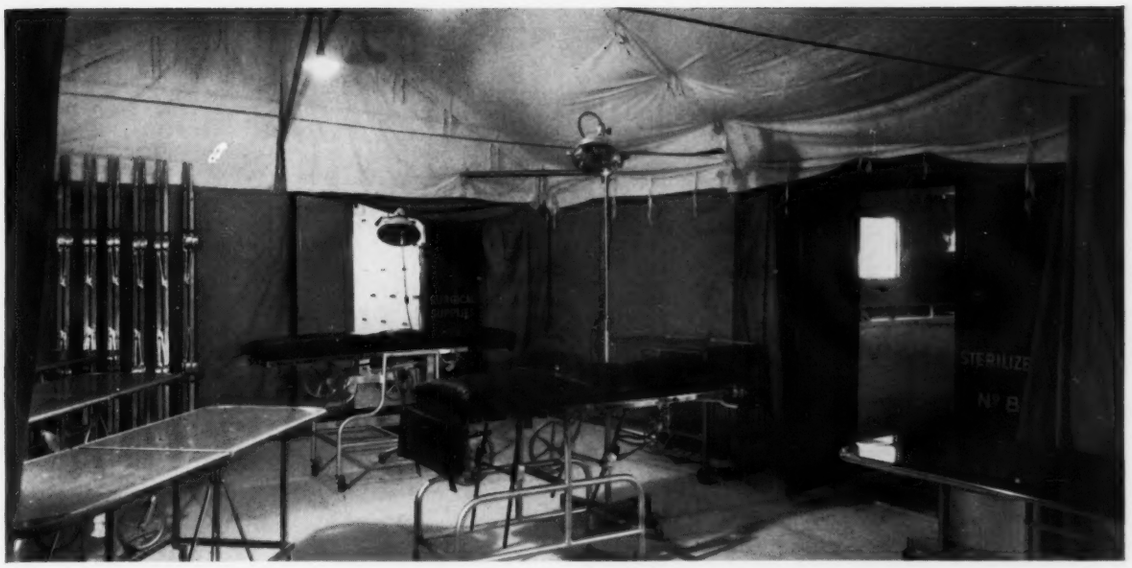
The first of these units, a 100-bed mobile tent hospital, is now being erected for proving and display in New York City on land loaned by Presbyterian Medical Centre at West 165th Street and Fort Washington Avenue. It was designed for eventual use in towns and villages in devastated areas of France where there are congested conditions due to the homeless refugees, with no facilities for combating epidemics. The unit can be moved into a town, set up in a few hours, to remain as long as the emergency requires. Where there are schools or other public buildings available for use as wards, more than one hundred patients can be accommodated.

There will be eight tents, each 18′ x 30′, each to accommodate twelve patients, and four more tents the same size for staff, nurses and help. These will be ordinary wall tents, but will have three windows on each side, and the two assigned to surgical cases will be double-walled. Three smaller tents are provided for administration, admitting service and instrument-washing.

The main tent, 18′ x 27′, will be equipped for examination, diagnosis and serum treatment as well as for surgery, and is of different construction. The frame, of standard steel pipe awning rods, is covered with canvas. The side walls are double, 8′0″ in height and the ridgepole is 13′0″ above the floor. The pipe frame fits into telescoping steel pipe posts that can accommodate a difference in grade of 3′ in 27′. The floor is made up of twelve plywood panels, 1¼″ thick with ⅛″ thick veneer finish top and bottom, bound on all edges with galvanized iron channels. These panels are reversible and interchangeable. In fact, all bolts and nuts are the same size throughout and are

AN EXPERIMENTAL SET-UP OF THE ARMY FIELD SERVICE UNIT—ON A MANHATTAN LOT OVERLOOKING THE HUDSON—WAS PHOTOGRAPHED BY ADOLPH STUDLY, JR. SEE PLAN OF A COMPLETE SERVICE UNIT BELOW





DISPOSITION OF EQUIPMENT IN THE SURGICAL TENT OF THE FIELD UNIT IS SHOWN IN THIS PHOTO BY STUDLY. THE DOORS LEAD INTO STERILIZER AND SURGICAL SUPPLY TRAILERS SHOWN OVERPAGE

tightened by ratchet speed wrenches with one size permanent sockets. A roof interlining of light weight washable canvas strips is provided for cleanliness and light.

Connected to this tent by canvas bellows are two trailers and a truck. The truck will carry the portable X-ray apparatus and is equipped with lightproof louvers and curtains for use as a developing-room. One of these trailers will carry the surgical supplies and serve as a work-room. The other trailer houses the sterilizing apparatus and carries cabinets for extra drums. Sterilization is done by high pressure steam piped from the boiler trailer. Kerosene burners are attached to instrument, utensil and dressing sterilizers for use in case of steam supply failure.

Altogether there will be fourteen trucks, ten trailers, four ambulances, two station wagons and two cars to carry tentage, equipment and personnel. Some of these trucks and trailers will be fitted for special duties.

One trailer carries the electric power plant. This consists of two gasoline-driven 5 K.V.A. Delco generators for light and power, and a third generator of 1½ K.V.A. for X-ray apparatus. As the computed maximum load is less than 6 K.V.A. one will carry normal loads. Nevertheless, these generators are cross-connected with automatic switches so that if one should become overloaded or fail for any reason the other will go into action to maintain flow of current.

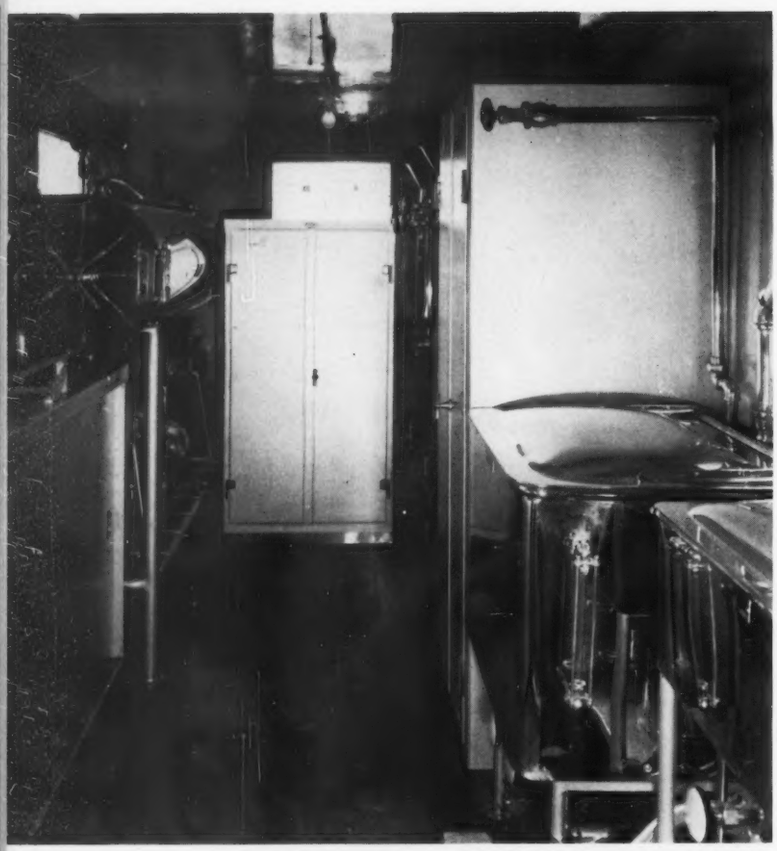
Another trailer, with a Cleaver-Brooks kerosene-fired high pressure steam boiler, furnishes the steam for the sterilizers as well as for the unit heaters in the main tent. This steam is carried by flexible metal hose with railroad car couplings to the connections on the sterilizing trailer and the tent. This trailer also carries a 120-gal. hot water tank, a kerosene tank and the necessary accessory pumps and piping.

The Laboratory truck contains a kerosene refrigerator for serums, work counters with sink, kerosene burners, centrifuge, microscope and incubator. It is well lighted by windows and has numerous electric outlets.

Two trucks and a trailer carry provisions for thirty days' supplies. The trailer is lined on both sides with shelving and bins. The shelves have wooden doors which clamp on without hinges. The doors have folding legs which can serve as tables for the personnel mess, when the outfit is not in transit.

One provision truck is equipped with refrigeration. When in transit, the truck motor furnishes the power for the compressor, but when stationary current is taken from the power trailer.

The kitchen trailer is unique inasmuch as it not only takes care of cooking for the patients, but one side can be opened with a fly tent for protection so that it may be used as



VIEWS FROM THE SURGICAL TENT INTO THE STERILIZER TRAILER (ABOVE) AND SUPPLY TRAILER (BELOW). PHOTOS BY ADOLPH STUDLY, JR.

a cafeteria for the staff, or a shelter where refugees may receive food. The other side of the trailer also has a fly tent where food is prepared and patients' trays and containers are washed. The food is carried to the patients' tents in containers and dished out at the bedside.

Inside this trailer are cupboards, dressers and counters running about half the length on each side. One counter has a sink; the other supports a coffee urn with tray racks above. At the end are ranges and a 30-gallon soup or stock kettle; above the ranges is a 50-gallon hot water tank. The ranges and kettles are arranged for kerosene fuel but additional grates are carried so that wood or charcoal may be used.

A trailer with a special body houses four toilets, two lavatories and two showers for the use of the staff and nurses. It is so arranged that it can be entered from opposite sides, affording privacy. A pressure tank and an automatic electric pump are in the rear.

A tank truck with three compartments carries the fuel: 300 gallons of kerosene, 200 gallons of gasoline and 100 gallons of lubricating oil. Three trucks, each of 600-gallon capacity, carry the water supply. These trucks are stationed close to the kitchen, sterilizing and bath trailers, and water can be pumped directly into their tanks. All trailers and trucks using water or fuel have their own tanks with over twenty-four hours' supply, so they may be kept in operation while the tank trucks are getting fresh supplies.

The repair truck is arranged as a complete shop with anvil, lathe, welding set and work bench. It carries a stock of special tools and spare parts; and is fully equipped to take care of any emergency. Every effort has been made to make this unit self-sufficient. All tires, wheels and axles are identical and interchangeable. Duplication has been carried out as far as possible to lessen the number of spare parts required. Each truck has an auxiliary tank and can carry enough gasoline to go 300 miles without replenishing. The large amount of food and medical supplies make it possible for the unit to be out of contact for over thirty days at a time.

ARCHITECTURE OF HOSPITALS

BY TALBOT F. HAMLIN

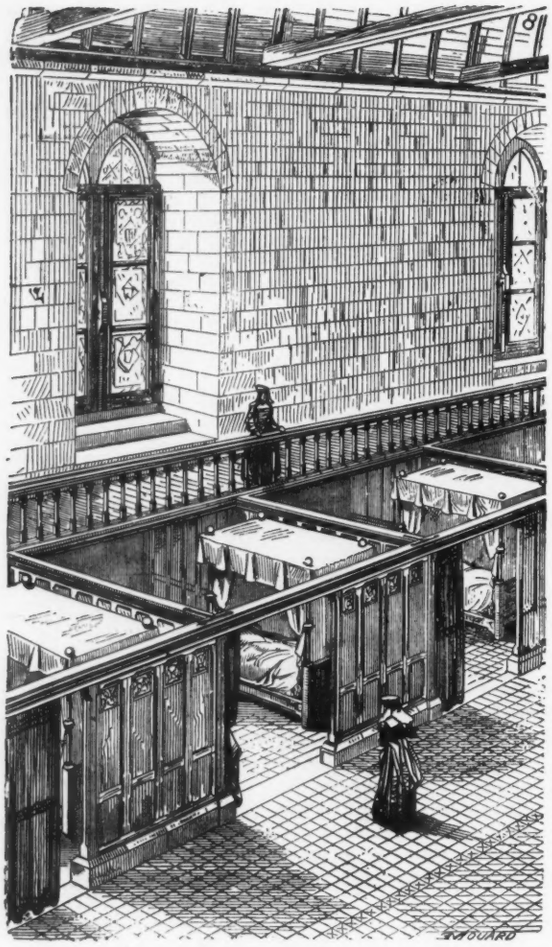
Many of us are born in hospitals, some of us will die in them, and in the years between we may often be forced, willy-nilly, to live for longer or shorter periods within their chaste and antiseptic walls; or, if we have the fortune to avoid being inmates of them ourselves, we shall visit our friends there, or go to welcome the new family members of those we care for. Thus hospitals in the world of today are inevitably bound up with many of the most important, the most emotionally compelling, incidents of human life. How well are the hospitals of our time suited to fulfill this extraordinary responsibility?

Modern hospitals as a class form an amazingly sensitive gauge to register the accomplishments of today's architecture. They are the result of one of the most significant of modern trends—that of specialization. They are designed with the utmost care to perform the most varied and carefully differentiated functions. Nowhere in architectural practice has the role of the advisory expert been so necessary or so highly developed, and in no other buildings—except perhaps some of the best mass production factories — have the technical problems required by the complicated services of the building been more deeply studied or more completely or satisfactorily solved.

Yet he would be indeed an architectural optimist who would find all of the hospitals built today, despite their near-perfect solutions of practical service problems, great or even satisfactory architecture. Hospitals, like any other building types, are good, bad, indifferent; apparently the perfection of the solution of detailed functional problems is not enough.

This brings up, of course, the part of the architect in hospital design. Again and again the general arrangement and the detailed connections of rooms and apartments, the placing and choice of mechanical equipment, the necessary sizes of rooms and their services will be determined, not by the architect, but by the hospital staff in collaboration with the hospital expert. Their assumptions and decisions are the basic materials with which the architect must work. As always, the picture puzzle solution is not sufficient. These departments and their necessary corridors, these complicated suites for maternity or operation or X-ray, these intricate problems of food service, cleaning, laundry, sterilizing, and storage, will of course determine many elements in the final design, but they will never create the final design; and one of the greatest faults in many contemporary hospitals, even by architects of wide reputation, is that they look like additions of disparate parts, which unquestionably they are. They are not integrated, and the exterior and general plan forms which have been forced upon them to give them an "architectural" appearance are obviously imposed from the outside, without any real sense of growth from within, without any real sense of that organic wholeness which comes from a true grasp of the basic unity behind the entire hospital idea.

Nor are many of the designs lifted from the commonplace by the realization and expres-



THE WARD OF THE 13TH CENTURY HOSPITAL AT TONNERRE, AS ILLUSTRATED BY VIOLLET-LE-DUC

sion of the magnificent ideal behind the whole hospital movement — the ideal of making all the people, both the rich and the poor, healthy, happy, free of worry in matters of physical or mental condition. That certainly is an ideal which should constitute a flaming vision to set any designer's heart alight; yet, oftener than not, hospitals look cold, mechanical, and—if they are large—frequently rather terrifying. We are all of us hypochondriacs to some degree; the true hospital should liberate us from our hypochondrias, instead of which it frequently increases them. Little by little our schools are becomng places which children really can love; they are personal and inviting. Is it too much to hope for a similar development in hospital architecture? The hospital, particularly the great municipal hospital or the large institutional group, is still too often a place where we can put sick people and forget them. The true hospital should be a place where any of us would love to go as to a vacation.

* * * *

The hospital problem is no longer a question merely of great barracks for the sick; it is as broad as the whole field of medical services today. It includes not only big city hospitals, but small hospitals for the country and sanitaria of various types. As medical service increasingly attacks the problem of prevention rather than cure, and is more and more devoted to the cure of many types of illness or abnormality in which old-fashioned hospitalization is not required, the clinic, the outpatient department, the medical center or health center takes on a greater and greater importance.

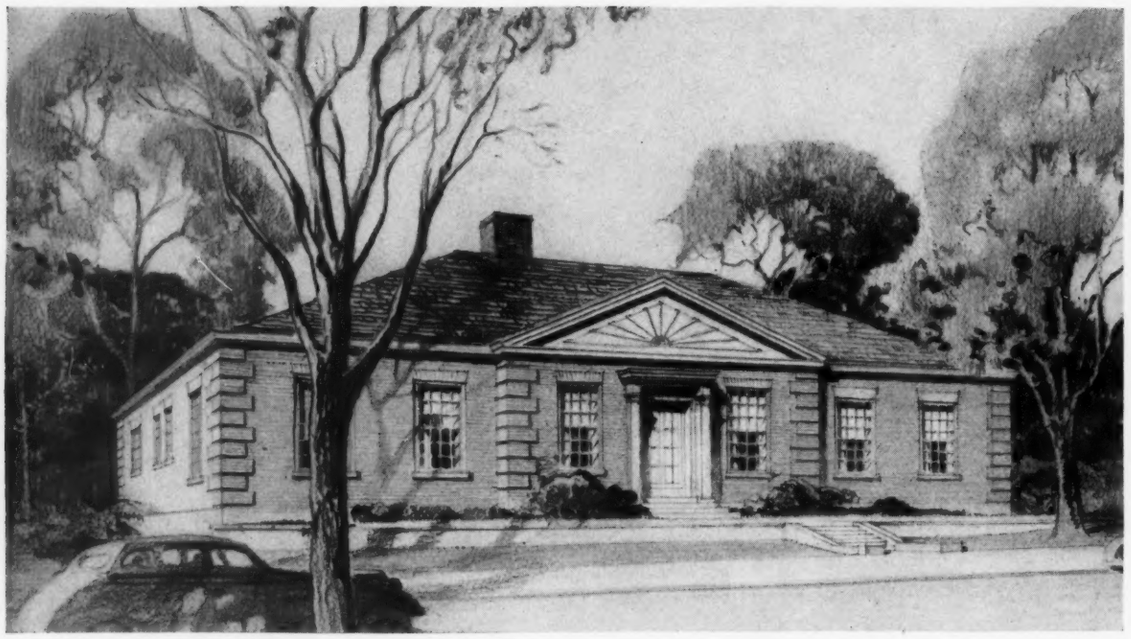
For more and more it is being realized that primarily the medical problem is less the mere objective study and cure of disease than it is the opportunity to help the greatest number of people to lead the fullest, happiest, and least hampered lives. The moment this is realized, it also follows that men's minds and emotions are as important to medicine as are their bodies; more and more the reaction of each of these three upon the others is being studied, and it is now accepted as a matter of course that the quality of the surroundings of the sick person may be as important in the cure as the specific therapeutic measures themselves. The great advances which have been made in the last few years in all hospital design have largely been advances in humanizing the design of the buildings.

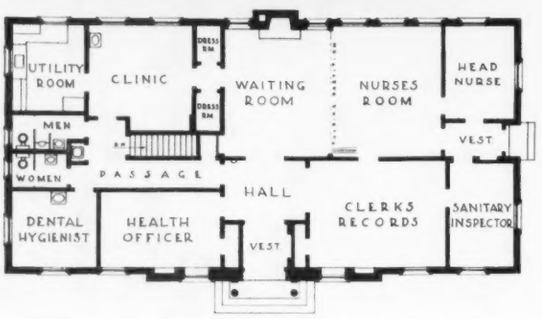
For instance, the problem of size is definitely affected. A certain magnitude is perhaps necessary in order to get the advantages of centralized skill and centralized services; yet the tendency today is definitely away from the great, brutal, impersonal wards of the 19th Century, with their terrifying lack of privacy, their almost prisonlike routine. The medieval hospital builders of the 13th Century had known better than that. The hospital which Margaret of Burgundy, Queen of Sicily, gave to the city of Tonnerre, begun in 1293, had one enormous ward, to be sure, a great hall some 55 feet wide and 280 long,

WARD ACCOMMODATIONS IN THE MODERN HOSPITAL ARE ILLUSTRATED BY THIS TYPICAL SIX-BED WARD IN THE MEADOWBROOK HOSPITAL, LONG ISLAND. JOHN RUSSELL POPE AND EGGERS & HIGGINS, ARCHITECTS

designed to take 40 beds; yet each was in its own little room, enclosed by wainscot but open above to the vast ceiling of the single hall, thus gaining the advantage both of privacy and of the ventilation and fresh air which the great size and height furnished. During the 19th Century, when the advances in medical knowledge were so continuous and impressive, and the increase in population of the western world so enormous, the development of the large and mechanized hospital, with its long and monotonous wards, was perhaps necessary. Today, however, they are outdated; doctors have come to realize that better care and happier patients mean smaller units. Thus we find a general tendency toward 8-bed wards as a maximum, divided perhaps by screens into 4-bed units as in the new Massachusetts General Hospital in Boston or the Phelps Dodge Hospital in Douglas, Arizona. Such an arrangement brings the beds parallel to the window walls, so that no patient is dazzled by direct window light; it allows a much more domestic, human atmosphere to be produced.

To gain these advantages without sacrificing the efficiency of the service and supervision which the large ward furnished is a plan problem of fascinating complexity. The utility rooms, the services of all kinds, the baths, and the storage areas must be located so as to be convenient to the ward units, and yet at the same time so arranged as not to thrust their sometimes unpleasant details upon the patient or the visitor. The number and proportion of private and two-bed rooms in hospitals is also continually growing. More and more the extreme differences which used to exist between the ward patient and the private room patient are being wiped out or at least minimized, as newer, more humane,





PERSPECTIVE AND PLAN OF THE HEALTH CENTER AT AYER, MASSACHUSETTS, DESIGNED BY JAMES GAMBLE ROGERS, ARCHITECT, OF NEW YORK, FOR THE COMMONWEALTH FUND. THIS MAY BE CONSIDERED CHARACTERISTIC OF THE FUND'S CENTERS

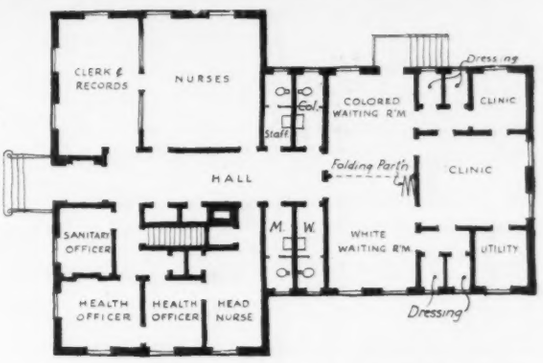
more democratic theories of medical service become generally accepted. In hospital bed arrangements, the old ideas of wholesale, impersonal treatment are gone, we hope forever.

But the size problem affects the building as a whole, as well as the various units of which it is made. The question of large versus small hospitals is still unsettled. Both types are apparently necessary. One of the great tenets of modern hospital design is rigid departmentalization. It has been discovered that the best treatment can only be given when different types of patients are housed separately. Separate psychiatric and children's departments are obvious necessities; the complete separation of the maternity department from the rest of the hospital is now recognized as one of the chief means of reducing the maternal death rate, still shockingly high in many American hospitals largely because of the lack of this separation. The development of X-ray diagnosis and therapy creates another natural department; and so on. It almost seems as though every advance in medicine meant a new complication added to the extraordinary diversity of the great modern hospital.

Manifestly, each of these departments must be of a certain size to enable it to function efficiently, and by adding up these minimum sizes some kind of an approximation may be made of the smallest general hospital which can be efficiently run and still give the best modern service in all fields. In big hospitals the problem is relatively simple. One develops naturally from the modern hospital program large buildings made interesting by being divided into comparatively small departments in which human scale can be easily maintained. Plans of cross or T type, or combinations of them, suggest themselves as offering centralized service for four relatively small ward or department units. The New York Hospital and Cornell Medical Center was an early example of this principle. Its almost perfect articulation, so that each architectural motif was a true expression of some difference in function or some special department, gave its enormous size a scale and a human quality, a basic simplicity,

and a general beauty of effect rare in earlier buildings of similar scope. The new Massachusetts General Hospital, also by Coolidge, Shepley, Bulfinch and Abbott, carries this development even further. Omitting almost all the artificially applied stylistic details of the New York Hospital, working everywhere for simplicity and humanity, it has achieved true distinction. Even the entrance, which in so many hospitals is either overmonumental or frightening, becomes a simple, attractive, and inviting approach. The details of the plan are equally well studied; especially interesting is the handling of the nurses' station and the arrangement of the utility rooms.

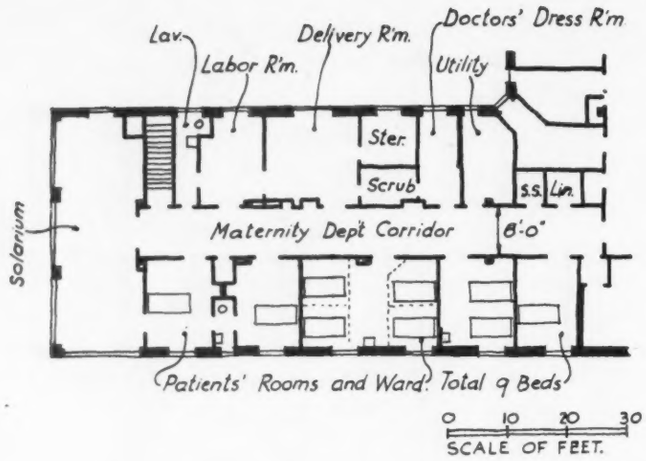
In the Phelps Dodge Corporation hospital at Douglas, Arizona, by Eggers and Higgins, there is a similar delightful humanity in exterior scale and detail, and a somewhat similar development of the cross-shaped plan. This one-story building, with its wide and spreading eaves, its simple straightforward window treatment, and its curved solaria, is almost perfect in achieving the desired character; it is truly an attractive building to which one would love to come either as visitor or patient. The details of the plan, however, do not quite equal this promise. Particularly questionable is the placing of the utility rooms, with only one small window, directly opposite the nurses' station, which is entirely dark, so that all the traffic



A LARGER HEALTH CENTER WAS BUILT AT TRENTON, TENNESSEE, BY THE COMMONWEALTH FUND. THIS ALSO WAS DESIGNED BY JAMES GAMBLE ROGERS AND HAS SEVERAL UNUSUAL FEATURES

from wards to the utility room—of food and linen and bedpans and whatnot—is necessarily paraded before the visitor in the central foyer. Another possible question is the design of the private rooms in such a way that the beds are almost necessarily placed in the corners or with the long side against the wall. This arrangement means unnecessary work for the nurses and might entail serious disturbance for the patient. On the other hand, the planning of the outpatient department, with its airy waiting room flooded with south light from two walls and its simple arrangement of consulting office and doctors' rooms, is excellent.

It is in the rural hospital that the problems of size and departmentalization most urgently arise. Ideally, every farm home, every



THIS SHOWS PROVISION MADE BY JAMES GAMBLE ROGERS AND CHAS. CRANE, ARCHITECTS, FOR MATERNITY CASES IN THE ADA, OKLAHOMA, HOSPITAL

rural cottage, should be within easy distance of an efficient hospital. A 40- or 50-mile radius is supposed to be the maximum practical distance at which a hospital can give adequate service, and yet in place after place in this country such a radius will embrace sufficient population to support a hospital of 10 beds at the most, and such a hospital is too small to allow the benefits of the necessary departmentalization; unavoidably its rooms will be used for all kinds of patients at different times, and it may even be necessary to use its operating room as a delivery room, which is contrary to all the best medical rules. Generally speaking, the minimum size for a really good hospital is somewhere between 25 and 40 beds, and such a size means a community of considerable population, the general proportion being between one and two beds per thousand. Perhaps the answer to this almost insoluble dilemma must lie in a completely new kind of building — the rural medical center, which acts chiefly as a center for health education and clinical service, but in emergencies has facilities for temporary hospital use.

This question of the rural hospital is necessarily connected with the problem of the automobile and of those automobile accidents which have become, shockingly enough, almost a routine and accepted part of American life, and which are as likely to happen on country thoroughfares as on city streets. In many of them the very life of the victims may depend upon rapid emergency treatment. The problem is still far from solved. Again, the building of rural medical centers may indicate one way of attacking it.

There are differences of opinion among medical authorities on the advisability of combining functions of health center and hospital under one roof. The Commonwealth Fund, with long experience with both health centers and hospitals in rural areas has found it impracticable to combine the two since different experiences, abilities and training qualifications are required in their satisfactory operation. A characteristic example of their health centers is the one at Ayer, Massachusetts, by James Gamble Rogers—a simple one-story building, with a pleasant waiting room, a clinic, a nurses' room, offices for health officer, sanitary inspector, and dentist. A larger type is that at Trenton, Tennessee, by the same architect, where the problems inherent in the local Jim Crow laws are most sympathetically and interestingly solved in a plan in which, if those laws should ever be changed, the spaces of the two sets of services could be perfectly combined into one.

The Commonwealth Fund has also been instrumental in the construction of several rural hospitals of either 50- or 60-bed capacity. This is a size amply sufficient to justify the rigid and careful departmentalization required by modern standards. The plans of these hospitals have been studied in the greatest detail by the Fund, and the maternity department shown here is an excellent example of this careful, detailed planning.

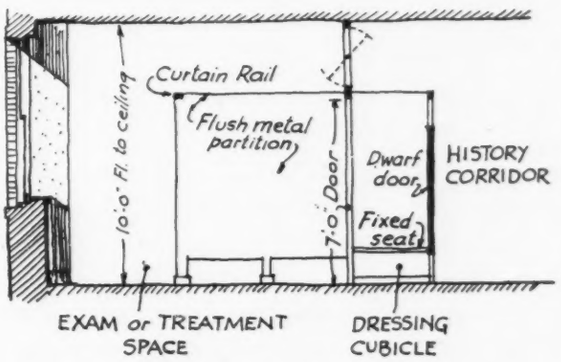
* * * *

More and more, the most important part of any hospital—the place in which it affects the lives of most people—is its clinics or outpatient departments; and it is precisely in these departments that technical standardization and the ideals of humane design have been most frequently at odds. The standard outpatient department has for years consisted of a dark inside waiting room, with rows of benches or perhaps auditorium chairs for the patients, surrounded by glass and wood screens leading into the examination and treatment rooms. Being on the

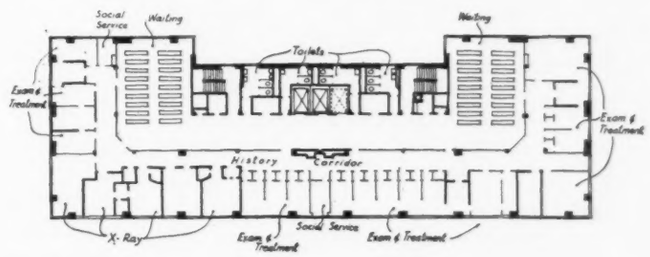
ground floor, the room has usually a low ceiling, and, however good its ventilation or its artificial lighting, the result has almost always been depressing and impersonal to the last degree. It has been a place where patients, perhaps frightened already, are forced to sit for their allotted waiting time with the claws, as it were, of the hospital already around them, and with nothing to do or nothing to think of save their own symptoms or the approaching terrors of the treatment which they are expecting and which they may not understand. I can think of nothing more destructive of personal morale, more likely to produce fright or even a hatred of necessary treatment, more stimulating to negative and fearful thoughts, than the ordeal of sitting perhaps an hour or two in such a stark, unwelcoming chamber.

And it is precisely here, too, that the great function of the architect, as opposed to the purely medical hospital consultant, may be brought most fruitfully to bear. Until recently — and perhaps in many cases even now—doctors have been forced to think of patients impersonally as cases, not as people. The experts have been forced to think primarily of doctors' and nurses' comfort and efficiency, of the saving of steps on the part of the staff, and of safety against infection. The architect, however, in hospital design as in so many other fields, must think not only of these elements but of the total effect of anything which he designs upon human personality as a whole. That is why he is *forced* to think of appearance, for the appearance of things is a constant stimulus to pleasant or unpleasant thoughts, to cheerfulness or gloom. In addition to putting himself in the place of the overworked nurses and the devoted doctors, he must also put himself in the place of the patients; he must become perhaps as ignorant and as afraid as many of them will be; he must follow them through their routine of registration, waiting, examination, and treatment; he must imagine the effect upon them of every step in the process, and if he is fulfilling his real function he must think always in terms of human emotion rather than in those of mere square feet. Under any such examination, most standardized outpatient departments and many even recent health center buildings appear instantly as the somewhat inhuman machines they are.

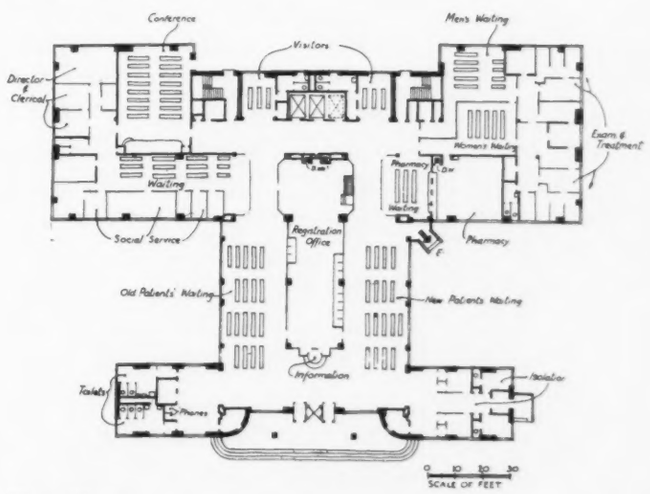
It is fortunate indeed that, with the whole broadening of the concept of the function which medicine plays in life, this attitude toward the outpatient department is beginning to change. As larger and larger numbers of people come under the benign influence of a broadened health program, and as fewer of this growing number demand actual hospitalization, the human element in these buildings is being more and more con-



Section of Typical Examination Cubicle



Third Floor



First Floor

O.P.D. BUILDING OF KINGS COUNTY HOSPITAL, NEW YORK, DESIGNED BY THOMAS W. LAMB

WILLIAMSBURG-GREENPOINT HEALTH CENTER, OPERATED BY THE NEW YORK DEPARTMENT OF HEALTH, WAS DESIGNED BY HENRY C. PELTON

sidered. In the best of the recent New York City health centers, for example, the waiting spaces are subdivided according to the type of clinic; they are smaller, more intimate, and the best of them have natural light on at least one side so that the old enclosed and prisonlike feeling tends to disappear.

This new development is seen at its best in the large new building for the outpatient department of Kings County Hospital, by Thomas W. Lamb. Here almost for the first time is a great clinic building designed apparently more around the patient, his comfort and his needs, than around the staff. And this attitude is carried out in the greatest detail. The essence of the design, from the functional point of view, is the rapid sorting of cases, and the aim in every step of the process is to respect the privacy and the individuality of the patient. The separate cubicles for preliminary consultation are characteristic of the entire design. Once registered, the patient is sent to his special clinic. The waiting rooms of each are pleasant corner rooms, lighted from two sides and kept small and human in scale by the strict departmentalization. Here again the filling out of the specialized record cards is done in a humane manner, and adjacent to the waiting rooms is a corridor where the case records can be made individually and privately.

An equal care surrounds the design of the examination and treatment rooms. Each is preceded by a dressing room, and the chief high partition between the public and treatment spaces is placed between the dressing room and the treatment room rather than between the dressing room and the corridor. The dressing room partitions next to the corridor rise only part-way, so that even while the patient is preparing himself for examination or treatment he is still protected from the sounds and the sights of examination and treatment processes. His mind is kept as free as possible right up to the treatment time.

This, it seems to me, is the kind of imaginative approach to the architectural problems of medical service that must increasingly control the hospital and medical center field. If it is true that the psychological state of

THE WELFARE ISLAND DISPENSARY OPERATED BY THE NEW YORK DEPARTMENT OF HOSPITALS WAS DESIGNED BY LOUIS JALLADE OF NEW YORK. THE VIEW BELOW SHOWS THE PATIENT'S WAITING ROOM OF THE WELFARE ISLAND DISPENSARY AND IS REPRESENTATIVE OF THE INTERIOR TREATMENT

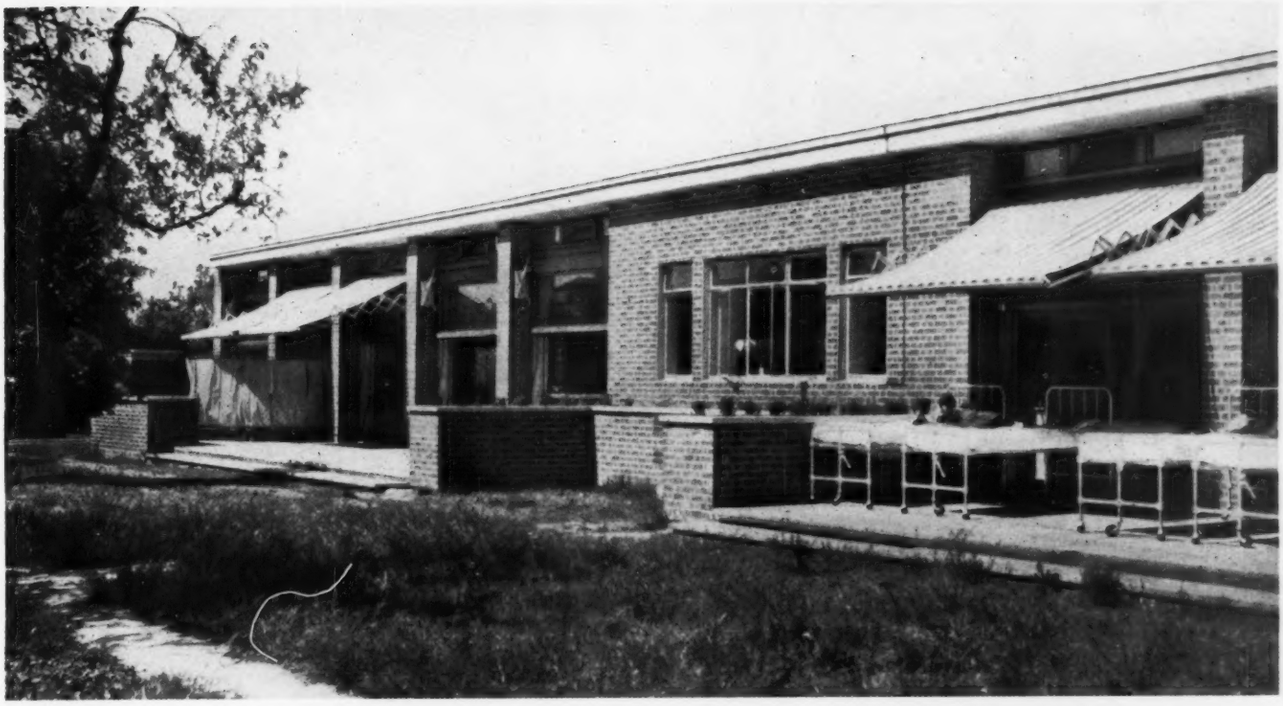
the patient is an important conditioning factor in his health, it is certainly the part of a democratic civilization to see that this fact is as deeply realized in clinical outpatient departments as it is in the design of private rooms or wards. The problems of room color, room size and atmosphere, and ward and private room lighting have been studied for years from the psychological standpoint. Yet during this same period the outpatient or clinical departments of hospitals have been allowed to grow as emergency treatment rooms have grown, thoughtlessly and mechanically designed, often in spaces ill-fitted to receive them, because those were the spaces which were somehow left over. Perhaps this was because clinics and outpatient departments were often considered more as mere training grounds for young doctors than as primary elements in a health program. Nevertheless, this attitude, so far as the medical approach goes, has already changed fundamentally, and the persistence of the old type of clinic has become a matter merely of unforgivable mental inertia. It is all the more gratifying to see in this Kings County Hospital outpatient department such a completely new and fresh and human approach.

* * * *

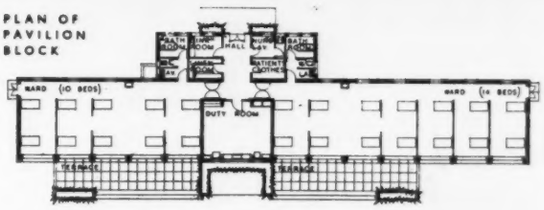
It is in this quality of humanity, of thinking always of the emotional effect, and of thus realizing the enormous importance of the aesthetic appearance of the whole that the function of the architect in hospital design must primarily lie. For, just as the interiors and the departments of a hospital must be pleasant and encouraging, so the exterior must have the same welcoming, personal, and human character. The hospital is not a house, nor is it a factory; its character must have a subtle balance of human scale and community scale. How is this character to be produced? Why not begin with real hospital requirements? Fortunately the hospital needs floods of light in many of its rooms. The continuous glass areas of the Kings County outpatient department are one answer. Perhaps the diffusing quality of the light through glass brick might be excellently employed in many places. The Holabird and Root emergency hospital has continuous walls of glass brick, with a broad overhanging roof to keep off the direct rays of summer noontime sun, and the result is certainly pleasant. Yet the use of glass brick brings in its own difficulties. How, for instance, shall partitions be finished against them? Absolute germproof separation between adjoining hospital rooms should be, of course, a universal demand in hospital design, and this would seem to indicate some kind of rhythmical division, so that partitions could finish solid against solid mullions or piers, rather than any absolute continuity of treatment.

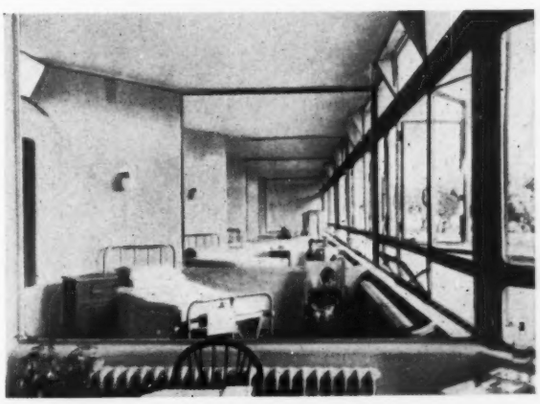
In this matter of hospital character the recent hospital architecture of England has been especially successful. The English have aimed, wherever possible, at low and spreading buildings, with pleasant and direct handling of the parts, so that windows and walls and the wide glass areas of solaria form together compositions which are truly lovely, inviting, and personal. Even in their great many-storied city hospitals this aim has controlled the best English work. Such hospitals as that at Surbiton, or the South Middlesex Fever Hospital, are characteristic of this success. Here in America, stylistic prejudices have again and again led us to falsify the hospital problem by trying to make it either too domestic or too monumental. The small house window sizes of the Colonial, with their many muntins and small panes, are basically contradictions of the need for cleanliness, simplicity, directness, and light which should be an essential part of the medical building; and over and over again our hospital work shows a kind of compromise which has neither the true charm of real Colonial work nor the fresh and open spirit of the contemporary.

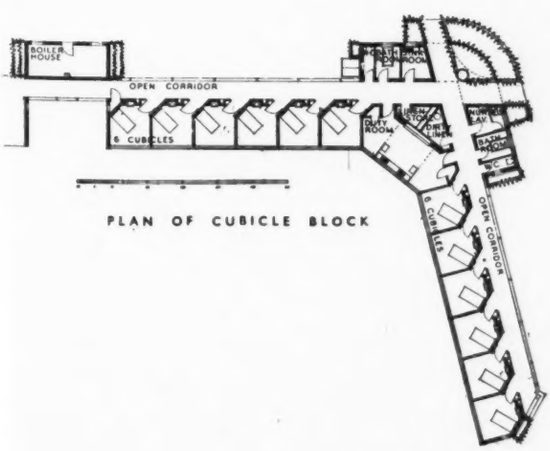
It is therefore with all the greater pleasure that one comes upon buildings in which the hospital or health center spirit is so agreeably and forthrightly expressed as in, for instance, the Welfare Island Health Center in New York, by Louis Jallade, the Massachusetts General Hospital, the Phelps Dodge Hospital at Douglas, Arizona, or the Kings County Hospital outpatient department.



AN ILLUSTRATION OF THE PLEASANT HANDLING OF HOSPITAL REQUIREMENTS IN THE LOW, SPREADING BUILDINGS OF ENGLISH RURAL HOSPITALS IS THE SOUTH MIDDLESEX FEVER HOSPITAL AT ISLEWORTH—HERE REPRODUCED FROM PAGES OF *THE ARCHITECTURAL REVIEW* OF LONDON. THE OPEN PLANNING NECESSARY TO A FEVER HOSPITAL IS COMBINED WITH A COMPREHENSIVE SYSTEM OF DIRECT COMMUNICATION WITH EACH OF THE NUMEROUS UNITS OF THE LARGE PLAN—DESIGNED TO COMBINE FUNCTIONS OF THREE EXISTING HOSPITALS. WITH THE EXCEPTION OF A THREE-STORY NURSES' HOME NONE OF THE HOSPITAL UNITS IS MORE THAN ONE STORY. THE CONSTRUCTION IS HOLLOW TILE AND BRICK, WITH RE-ENFORCED CONCRETE FLOORS AND ROOFS

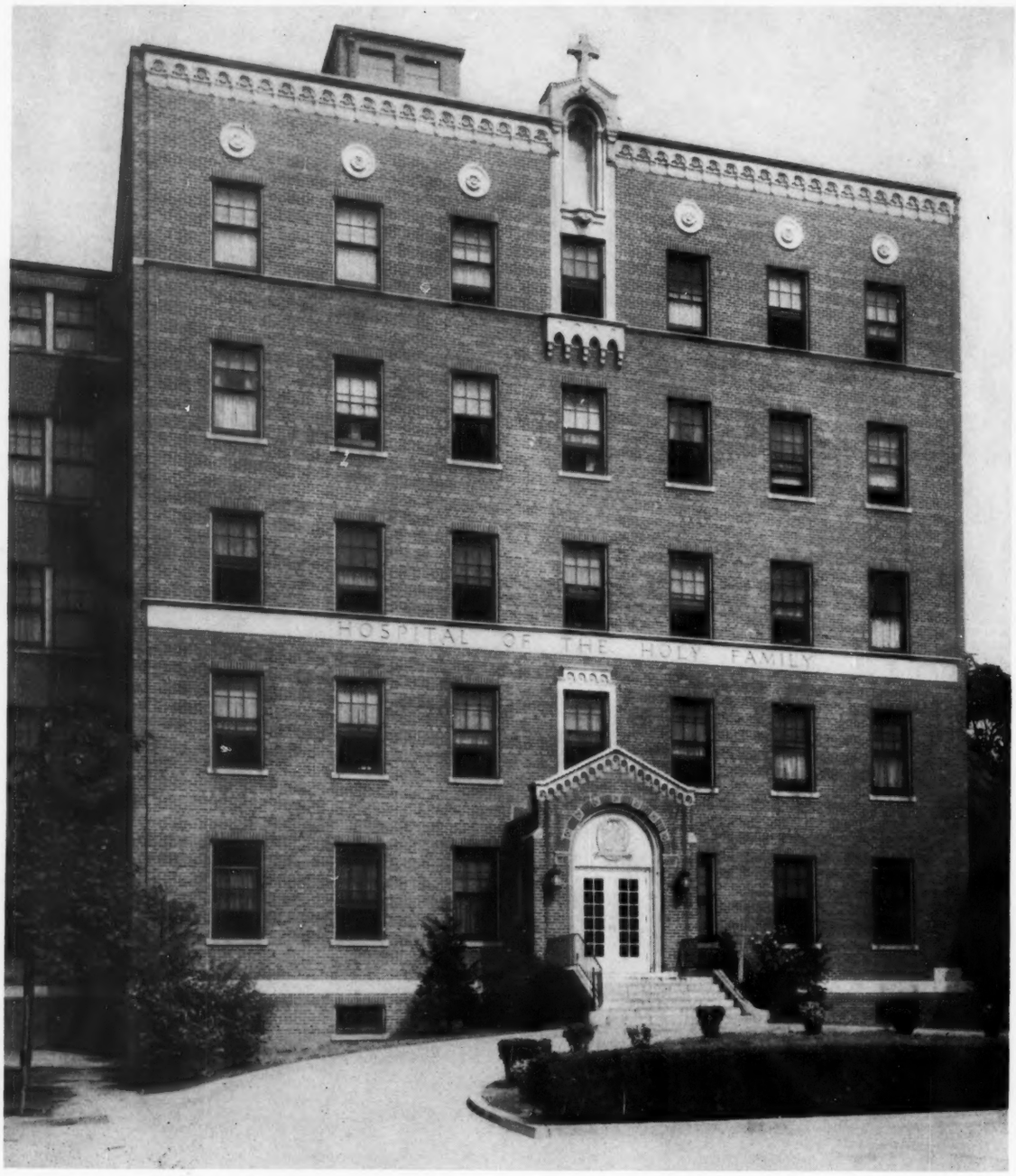


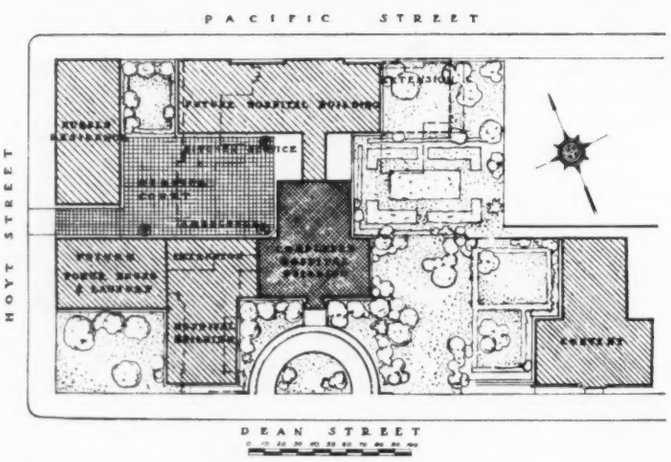




TWO TYPES OF FACILITIES FOR PATIENTS IN THE SOUTH MIDDLESEX FEVER HOSPITAL ARE HERE ILLUSTRATED—THE TYPICAL PAVILION BLOCK AT TOP AND THE TYPICAL L-SHAPED CUBICLE BLOCK (USED WHEN FEVERS MAY CAUSE CROSS-INFECTION) IMMEDIATELY ABOVE. PHOTOS AND PLANS COURTESY OF *THE ARCHITECTURAL REVIEW*

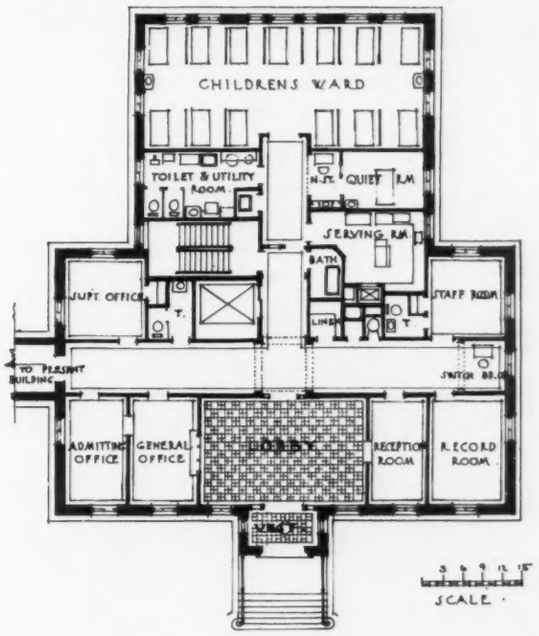
SOUTH MIDDLESEX FEVER HOSPITAL — P. J. B. HARLAND, ARCHITECT



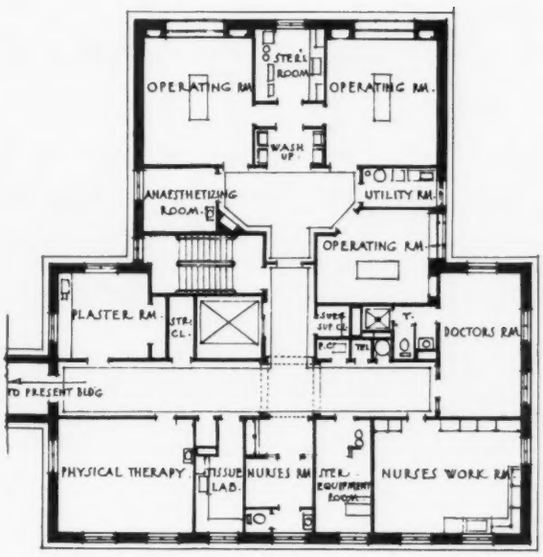


CAREFUL CONSIDERATION WAS GIVEN TO THE ULTIMATE DEVELOPMENT OF THE ENTIRE PLANT OF THE HOSPITAL OF THE HOLY FAMILY IN BROOKLYN WHEN CROW, LEWIS & WICK, ARCHITECTS, OF NEW YORK, DESIGNED THE CENTRAL BUILDING SHOWN ABOVE. THE RELATION OF THIS UNIT TO THE EXISTING AND FUTURE BUILDINGS OF THE HOSPITAL IS SHOWN BY THE PLOT PLAN AT THE LEFT

CENTRAL BUILDING, HOSPITAL OF THE HOLY FAMILY, BROOKLYN

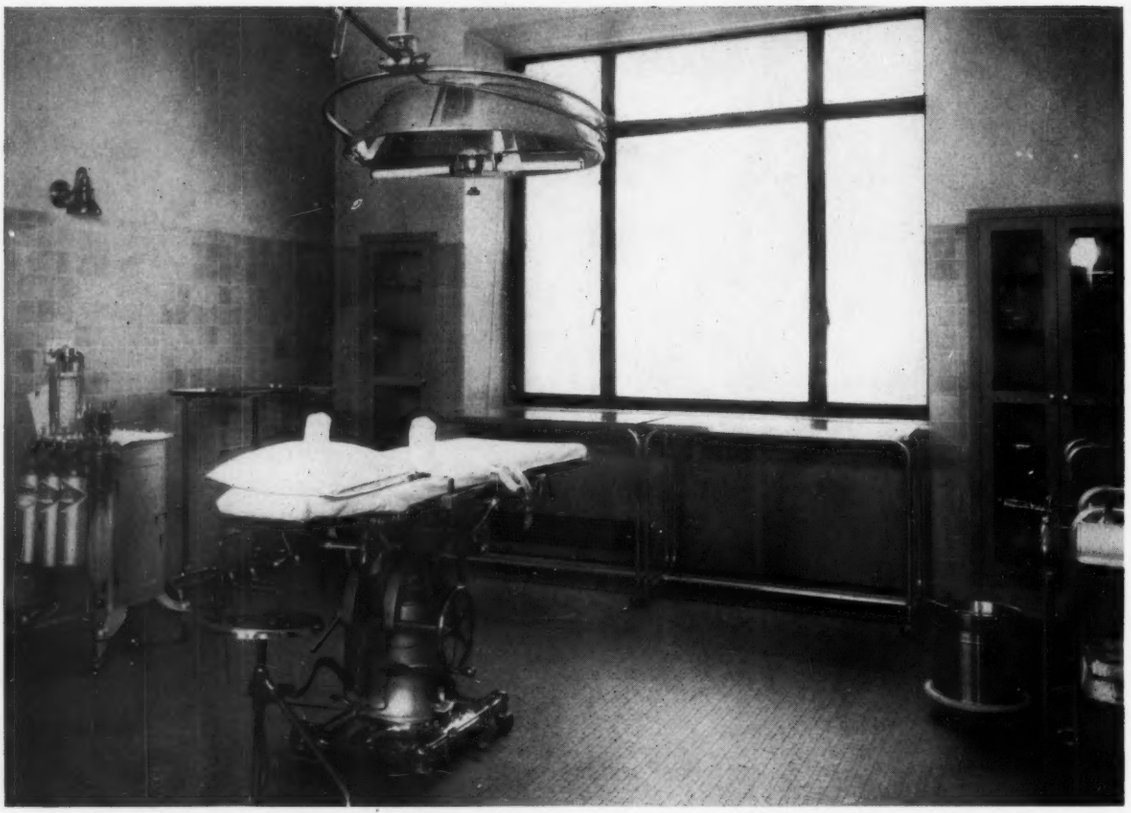


FIRST FLOOR

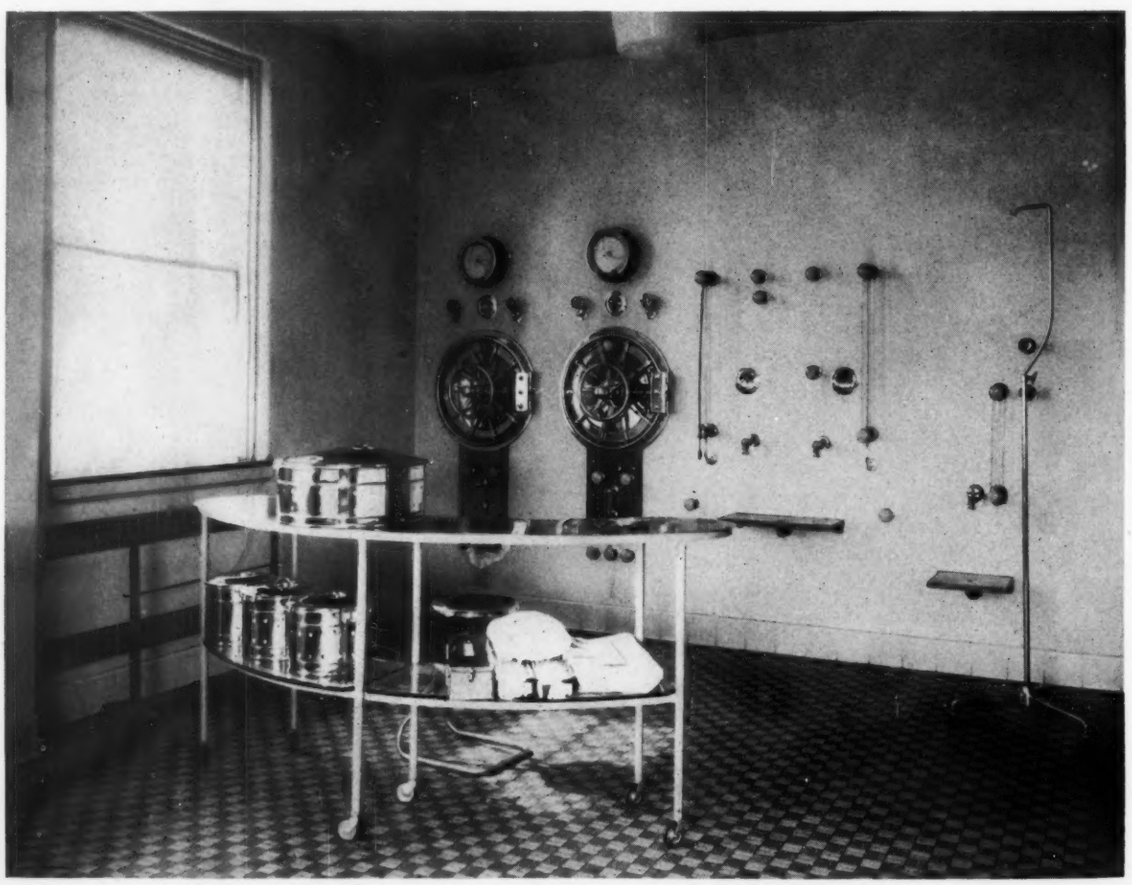


PLANS OF THE BUILDING ALSO REFLECT THE RELATION TO OTHER UNITS OF THE HOSPITAL. THE FIRST FLOOR PLAN INDICATES THE DIRECTNESS OF THE ARRANGEMENTS FOR RECEIVING PATIENTS AND VISITORS AND CONTROLLING ACTIVITIES OF THE HOSPITAL. AMBULANCE CASES ARE ADMITTED AT A DRIVEWAY ENTRANCE JUST UNDER THE SUPERINTENDENT'S OFFICE, BACK OF THE PASSAGE TO THE PRESENT BUILDING (SEE PLOT PLAN ACROSS PAGE). DISPOSITION OF OPERATING ROOMS AND SPECIAL FACILITIES, ON THE NORTH SIDE OF THE BUILDING, IS SHOWN BY THE PLAN OF THE OPERATING FLOOR (LEFT BELOW) AND THE DISPOSITION OF ACCOMMODATIONS FOR PATIENTS IS SHOWN BY THE TYPICAL FLOOR PLAN (RIGHT BELOW). THE BRICK AND LIMESTONE BUILDING HAS A FRAME OF STRUCTURAL STEEL AND IS EQUIPPED WITH THE MOST MODERN MECHANICAL DEVICES AND SERVICES. THE PHOTOGRAPH OF THE HOSPITAL ACROSS-PAGE AND THOSE OVER-PAGE SHOWING THE MAIN OPERATING ROOM AND A STERILIZING ROOM WERE MADE BY ROBERT W. TEBBS, ARCHITECTURAL PHOTOGRAPHER. THE HOSPITAL HAS SIX FLOORS

DESIGNED BY CROW, LEWIS & WICK, ARCHITECTS, NEW YORK



THESE VIEWS OF THE MAIN OPERATING ROOM (ABOVE) AND A STERILIZING ROOM (BELOW) ILLUSTRATE HANDLING OF EQUIPMENT IN THE HOSPITAL OF THE HOLY FAMILY, DESIGNED BY CROW, LEWIS & WICK



HOSPITAL OF THE HOLY FAMILY—CROW, LEWIS & WICK

RECENT LITERATURE ON HOSPITALS

COMPILED BY ALAN MATHER

With a few exceptions, this is a list of books and articles published since 1937. For previous works see the hospitals bibliography in *The Architectural Record*, Vol. 82, July 1937, pages 121 to 124.

Indispensable to an architect with a hospital to design are the checklists of questions that call for consideration in planning the several departments of a general hospital on pages 655 to 714 of the HOSPITAL YEARBOOK for 1938. The Yearbook is an alphabetical index of supplies, equipment, building materials, and specialties having application in hospitals and allied institutions. It contains addresses and advertisements of manufacturers and suppliers.

Another helpful work is SPECIFICATIONS FOR A HOSPITAL (Pencil Points Press, Inc., 1927, 488 pages) written by York and Sawyer, Architects.

The address of the publication office and the price per single issue of magazines listed here but not commonly known to architects are as follows:

- *Civil Engineering*, American Society of Civil Engineering, 33 W. 39th St., New York, N. Y. 50c.
- *Heating, Piping and Air Conditioning*, Keeney Publishing Co., 6 N. Michigan, Chicago, Ill. 25c current, 50c back.
- *Hospitals*, American Hospital Association, 18 East Division St., Chicago, Ill. 35c current.
- *Modern Hospital*, 101 Park Avenue, New York, N. Y. 35c current, 50c back 6 months, $1.00 older issues.
- *Refrigerating Engineering*, American Society of Refrigerating Engineers, 37 W. 39th St., New York, N. Y. 50c current, $1.00 back.
- *Transactions of Illuminating Engineering Society*, Illuminating Engineering, 51 Madison Ave., New York, N. Y. $1.00.

GENERAL WORKS

- CHARLES F. NEERGAARD. *"New Standards in Hospital Design." Architectural Record*, Vol. 82, July 1937, Building Types Section, pages 117 to 120. "Convertible" room for one or two beds and "convertible" ward for four or five beds. Operating rooms arranged in tandem. The author is chairman of the Committee on Hospital Planning and Equipment of the American Hospital Association.
- HAVEN EMERSON. *"Building for the Sick." Architectural Record*, Vol. 82, July 1937, Building Types Section, pages 113 to 116. Interpretation of the findings of the Hospital Survey for New York by its Director of Study. Recommends that no more general hospitals of less than 200 beds be built in New York, that small general hospitals be merged and that more hospitals for chronic diseases, tuberculosis and mental diseases be provided.
- JOSEPH C. DOANE, M.D. *"Toward that Utopian Building." Modern Hospital*, Vol. 48, Mar. 1937, pages 75 to 77. An effort to define the limits of authority of the building committee, hospital superintendent, and architect in the process of hospital planning by a group. In this useful platonic essay, the architect's territory seems unnecessarily restricted—the author being a doctor.
- MALCOLM T. MacEACHERN. *Hospital Organization and Management.* (Physicians Record Co., 1935, 994 pages, $7.50.) In each of the many chapters about departments of a hospital, there is a section devoted to "physical facilities." From these the architect may get information as to administrative requirements.

TYPES OF HOSPITALS

For Chronic Diseases

- EDWIN A. SALMON. *"New Battleground in Cancer War." Modern Hospital*, Vol. 55, Sept. 1940, pages 56 to 59. Memorial Hospital, New York City. In-patient care of 240 patients; out-patient and follow-up clinics for 800 persons daily; extensive research laboratories. The author, an architect, is associated with James Gamble Rogers. (This hospital is presented also in *Architectural Forum*, Vol. 71, Nov. 1939, pages 379 to 383.)
- CHARLES BUTLER and L. M. FRANKLIN. *"Housing Chronic Disease Patients." Modern Hospital*, Vol. 54, Jan. 1940, pages 67 to 76. 1500-bed Welfare Hospital in New York discussed by two of its architects. A 54-bed Chronic Unit at Fairmount Hospital is included in these pages. (Welfare Hospital is presented also in *Architectural Forum*, Vol. 71, Nov. 1939, pages 394 to 398.)
- *"Chronic Hospitals." Architectural Record*, Vol. 84, Aug. 1938, pages 86 to 96. General statement about chronic patients, departments and rooms required in a chronic hospital. Plans, elevations of nursing and operating units, kitchens, ward buildings and administration building in the Welfare Hospital for Chronic Diseases, New York.
- WARREN F. COOK. *"Presenting the Baker Clinic." Modern Hospital*, Vol. 49, July 1937, pages 52 to 55. A unit at *Deaconess Hospital, Boston*, designed primarily for study and treatment of diabetes and other chronic diseases. Wards and private rooms.

For Contagious Diseases

- *"London Fever Hospital." Architectural Record*, Vol. 85, Jan. 1939, pages 40 and 41. 21-bed hospital. Deep cantilevered reinforced concrete balconies have vault lights.
- *"South Middlesex Fever Hospital, Isleworth." Architectural Review*, Vol. 84, Aug. 1938, pages 47 to 53. Extraordinarily beautiful plan and details.

For Cripples

- *"Galveston's Unit for Crippled Children." Modern Hospital*, Vol. 50, Mar. 1938, pages 54 to 57. Detailed description of a large pavilion at John Sealy Hospital.

General Hospitals

• H. P. VAN ARSDALL. *"81 Beds and Plenty of Space about Them." Modern Hospital,* Vol. 54, Feb. 1940, pages 76 to 79. Majority of bed capacity in semi-private rooms. Plans are of high quality. The author is an architect in the firm of Samuel Hannaford and Sons.

• CHARLES F. NEERGAARD. *"Planning the Small General Hospital." Architectural Record,* Vol. 86, Dec. 1939, pages 77 to 106. Specimen plans, charts of administrative and service areas, discussion of nursing units, clinical services and outpatient services for general hospitals of up to 200 beds. Tables of areas required for various rooms in 50- and 100- and 200-bed hospitals.

• EDWARD F. STEVENS. *"This Hospital to be Continued." Modern Hospital,* Vol. 53, Oct. 1939, pages 84 to 87. Public general hospital at Worcester, Mass.

• *"Hospital at Chichester." Architectural Review,* Vol. 85, June 1939, pages 275 to 278. 144-bed general hospital and nurses' home.

• *"Hospital, Haifa, Palestine." Architectural Review,* Vol. 85, Feb. 1939, pages 83 to 86. 250-bed general hospital and contagious disease pavilion of Modern design.

• G. WALTER ZULAUF, M.D. *"Fifty Years A-Growing." Modern Hospital,* Vol. 48, Mar. 1937, pages 46 to 54. Complete plan presentation of 600-bed Allegheny General Hospital, serving ward and private patients. The plan has an interesting resemblance to that of the main building of Kings County Hospital in New York City.

• *"Mercy Hospital, Melbourne and Gloucester House, Royal Prince Alfred Hospital, Sydney." Architectural Review,* Vol. 81, Feb. 1937, pages 51 to 55. Two general hospitals of similar and excellent design, one of 120 beds, the other of 160. Reinforced concrete construction with cantilevered balconies. (The Sydney Hospital is also in *Modern Hospital,* Vol. 49, Dec. 1937, pages 52 to 57.)

• *"Scarborough Hospital." Architectural Review,* Vol. 81, Feb. 1937, pages 73 to 75. 140-bed general hospital and nurses' home. Remarkable for effective placement of buildings on a hilly site.

For Psychiatric Patients

• L. R. BOWEN. *"Cottages for Mental Patients." Modern Hospital,* Vol. 52, May 1939, pages 53, 54. 78-bed cottages for mental patients. The author was supervising architect of the Bipartisan Advisory Board, Missouri State Building Commission.

• L. R. BOWEN. *"More Beds for Mental Patients." Modern Hospital,* Vol. 52, Mar. 1939, pages 76 to 79. 504-bed St. Joseph State Hospital, and 78-bed Fulton State Hospital in Missouri.

• *"Psychiatric Hospitals." Architectural Record,* Vol. 84, Aug. 1938, pages 105 to 110. General statements about departments and rooms from information supplied by the New York City Department of Hospitals. 350-bed pavilion at Kings County Hospital, New York; 288-bed State Hospital for the Criminal Insane, Fulton, Missouri.

• GEORGE B. McDOUGALL. *"Special Housing for Psychopathic Patients." Modern Hospital,* Vol. 50, Mar. 1938, pages 58 to 61. General requirements discussed with illustration from the plans of 1,300-bed Camarillo State Hospital, near Los Angeles, California. The author is state architect for California.

• ROSS R. VON METZKE. *"New Developments in the Architecture of Psychiatric Hospitals." Hospitals,* June 1936, pages 44 to 50. Discussion of walls and floors, windows, acoustics, plumbing, hardware, doors, lighting, wiring, and decoration based on experience of the author as Resident Architect, the Menninger Sanitarium, Topeka, Kansas.

Small Hospitals

• WILLIAM A. RILEY. *"When Planning the Small Hospital." Modern Hospital,* Vol. 55, July 1940, pages 46 to 49. Room requirements discussed with emphasis on differences from large hospitals. Comparative tables of areas and cost analysis of several small hospitals designed by Stevens, Curtin, Mason and Riley.

• CARL A. ERIKSON. *"Hospitals on the Reservations." Modern Hospital,* Vol. 54, April 1940, pages 64 to 67. Description of two twenty-bed Indian Hospitals in the planning of which the most stringent economy operated. The author is a member of the architectural firm of Schmidt, Garden and Erikson.

• *"The Small Hospital." Hospitals,* Vol. 14, Feb. 1940, pages 21 to 52. Album of floor plans with data on capacity, costs and cubage for fourteen small hospitals. Requirements discussed by Carl A. Erikson.

• *"Little Traverse Hospital, Petoskey, Mich." Architectural Forum,* Vol. 71, Nov. 1939, pages 384 to 387. Small rural institution.

• U. S. DEPARTMENT OF AGRICULTURE. *Hospitals for Rural Communities; Farmers' Bulletin 1792.* (U. S. Government Printing Office, Washington, D. C., 1937, 41 pages, price 5 cents.) Principles of site selection and planning of buildings. Standards for room sizes. Model plans by the Duke Endowment.

For Tuberculosis

• *"The Lake County Tuberculosis Sanatorium." Architectural Forum,* Vol. 73, Sept. 1940, pages 146 to 158. 92-bed institution of excellent Modern design.

• *"Tuberculosis Sanatoria." Architectural Forum,* Vol. 70, Mar. 1939, pages 173 to 184. General discussion of the effect which changes in treatment of the disease have had upon planning. Techniques of planning the various departments illustrated by photographs and diagrams.

• RUSSELL GUERNE de LAPPE. *"Sound Planning for Sanatoriums." Modern Hospital,* Vol. 52, Mar. 1939, pages 72 to 75. General statement of requirements. Plans of Stanislaus County tuberculosis hospital, California, for which the author is architect.

• W. H. SCOPES and M. M. FEUSTMANN. *"Admitting Unit for a Children's Preventorium." Modern Hospital,* Vol. 52, Jan. 1939, pages 58 to 60. 56-bed institution.

• C. W. DICKEY. *"Mauis' Tuberculosis Sanatorium." Modern Hospital,* Vol. 51, Dec. 1938, pages 48 to 51. 170-bed Kula Sanatorium in Hawaii.

• *"Tuberculosis Hospitals." Architectural Record,* Vol. 84, Aug. 1938, pages 97 to 103. General statements about departments and rooms required from information supplied by the New York City Department of Hospitals. 550-bed Triboro Hospital, New York, and 378-bed hospital at Harefield, England. The latter has adults' and children's nursing units.

• *"Tuberculosis Sanatorium Near Mexico City." Architectural Record,* Vol. 81, April 1937, pages 33 to 35. 1,000-bed institution.

ROOMS, DEPARTMENTS

Accident Ward

• PERRY W. SWERN. *"Accidents Will Happen." Modern Hospital,* Vol. 52, Mar. 1939, pages 59 to 61. Discussing circulation problems, the author, an architect, holds in contrast to many hospital superintendents "the accident patient and his relatives will resent being handled with the garbage, ashes of the dead" and presents three plan examples and discusses ways of relating the accident department to X-ray and surgery departments.

Administration Department

• BENJAMIN BLACK and W. G. CORLETT. *"Main Entrance and Lobby." Modern Hospital,* Vol. 52, Mar. 1939, pages 50 to 53. Three plan examples and inventory of services and personnel using the typical lobby.

Autopsy Room

• GERALD F. HOUSER. *"Autopsy Room and Its Appurtenances." Hospitals,* Aug. 1938, pages 68 to 71. General consideration on planning and equipment discussed by the Assistant Director of the Massachusetts General Hospital, Boston.

Kitchens

• MARGARET E. TERRELL. *"Planning the Bake Shop." Modern Hospital,* Vol. 52, June 1939, pages 94 and 96. Planning of the bake shop considered with reference to baking routine, labor saving and sanitation. Plan example.

• MYRON HUNT. *"Good Kitchen Planning." Modern Hospital,* Vol. 50, Mar. 1938, pages 69 to 72. General principles discussed by an architect.

• VIRGINIA RAY. *"Centralized Dishwashing." Modern Hospital,* Vol. 48, May 1937, pages 92 to 98. System adopted at large Albany General Hospital.

• PERRY R. SWERN. *"Planning the Dietary Department." Hospitals,* Mar. 1937, pages 74 to 83. The author, a hospitalization engineer, considers the problem from the angle of efficient routing of food from the delivery truck through the hospital departments to the garbage trucks. The approach is terrifying but highly intelligent. Diagrammatic plans, chart of optimum area of dietary department with relation to hospital bed capacity.

Laboratories

• ADDISON ERDMAN. *"Tour of Three Laboratories." Modern Hospital,* Vol. 50, Mar. 1938, pages 66 to 68. Laboratories for 50-bed and 75-bed hospitals. Laboratory at 1500-bed Welfare Hospital, New York. The author is an architect in the office of Charles Butler and Robert D. Kohn.

• WALDEMAR JOHANSON. *"Sweden's Pathologic Institute." Modern Hospital,* Vol. 50, Jan. 1938, pages 70 to 72. Plan, equipment and furnishings of the laboratory building of the Stockholm City Hospital described by its architect. The building is of excellent Modern design.

• LAURENCE H. MAYERS. *"Design for a Small Laboratory." Modern Hospital,* Vol. 49, Sept. 1937, pages 78 to 82. Layout of equipment shown is product of elaborate study of requirements.

Laundry

• O. N. AUER. *"Laundry Gets a Fresh Start." Modern Hospital,* Vol. 48, May 1937, pages 76 to 78. Location and description of equipment in a laundry serving a 350-bed hospital.

Maternity Departments

• ALBERT KAHN. *"Layout for Lying-In." Modern Hospital,* Vol. 50, Mar. 1938, pages 50 to 53. Discussion of planning principles illustrated with plans of the Woman's Hospital, Detroit, and the Youngstown Hospital.

• VICTOR A. FRID. *"Planning the Obstetrical Unit." Hospitals,* July 1937, pages 75 to 81. Unit in the Hartford Municipal Hospital described by a member of the firm of Ebbets and Frid, Architects.

Nurses' Home

• *"Nurses' Home at Macclesfield." Architectural Review,* Vol. 86, Oct. 1939, pages 163 to 170. A nurses' home of exceptional beauty.

• PHILIP SAWYER. *"Nurses' Home for St. Luke's Hospital." Modern Hospital,* Vol. 53, Aug. 1939, pages 46 to 50. Multi-story residence, with individual rooms for 300 graduate and student nurses, an infirmary, suites for department heads, auditorium, recreation rooms, classrooms, laboratories, described by its architect.

• *"Nurses' Home and Training School, Kings County Hospital." Architectural Record,* Vol. 82, July 1937, Building Types Section, pages 144, 145. 614-room home at a New York City Hospital.

Nurses' Stations

• MYRON HUNT. *"Nurses' Stations." Modern Hospital,* Vol. 54, Mar. 1940, pages 65 to 67. Plans of nurses' stations in five hospitals designed by Myron Hunt and H. C. Chambers are used to illustrate principles of arrangement.

Operating Suite

• *"Surgical Floor, St. John's Hospital." Architectural Forum,* Vol. 71, Nov. 1939, pages 388, 389.

• *"Surgical Operating and Ward Pavilion." Architectural Record,* Vol. 82, July 1937, Building Types Section, pages 140, 141. Five floors of wards containing 296 beds and four floors of operating rooms in a pavilion at Boston City Hospital.

Orthopedics

• WILLIAM A. RILEY. *"Orthopedics Takes the Floor." Modern Hospital,* Vol. 50, Jan. 1938, pages 59 to 61. Complete children's and babies' nursing unit at St. John's Hospital, Lowell, Mass., described by an architect.

• CHARLES L. MARSHALL. *"Kansas Constructs Ward Building for Children." Modern Hospital,* Vol. 49, Sept. 1937, pages 56 to 59. A unit serving eighty patients and providing teaching facilities for students in the medical school of the University of Kansas.

Out-Patient Clinics

• CHARLES B. MEYERS and J. J. GOLUB, M.D. *"New Building Doubles Space of Out-Patient Clinic." Modern Hospital,* Vol. 55, Aug. 1940, pages 64 to 67. A large four-story clinic serving 1,500 patients a day at the Hospital for Joint Diseases, New York. Mr. Meyers is the architect.

Pharmacy

• MORRIS DAUER. *"Spotlight on the Pharmacy." Modern Hospital,* Vol. 48, Mar. 1937, pages 71 to 74. Pharmacy at Kings County Hospital, New York. This serves a hospital group of 4,000 beds and an out-patient department visited by 1,000 patients daily. Prescription preparation room on ground floor and work room in basement are connected.

Physical Therapy

• J. S. COULTER, M.D., and W. H. NORTHWAY, M.D. *"Fundamentals in Design for Physical Therapy." Modern Hospital,* Vol. 50, Mar. 1938, pages 62 to 65. Short general comment on planning principles, partitions, equipment. Department in a 177-bed hospital discussed.

Power Plant

• WILLIAM A. RILEY. *"Some Pointers on Hospital Power Plants." Modern Hospital,* Vol. 54, Mar. 1940, pages 68 to 73. 6 plan examples of plants serving hospitals of from 38 to 323 beds; tables of boiler steam pressure requirements and of approximate areas for power plants. The author is an architect.

Social Service Department

• IDA M. CANNON. *"Facilities for Social Service." Modern Hospital,* Vol. 52, Mar. 1939, pages 64 to 67. 3 plan examples, quotation of answers to questionnaires sent to architects and directors of medical social service departments regarding space and location.

Ward Planning

• ADDISON ERDMAN. *"Planning of Wards." Modern Hospital,* Vol. 54, Mar. 1940, pages 62 to 64. Plan evolution, curtains, lighting, flooring and window furnishings discussed by an architect.

X-ray Department

• WILLIAM A. RILEY. *"Recommended for X-ray Departments." Modern Hospital,* Vol. 52, Mar. 1939, pages 54 to 58. 5 plan examples of X-ray departments for hospitals ranging from 50-bed to 500-bed capacity. Detailed discussion by an architect of department location, space, equipment and finish requirements of various rooms.

• CHARLES A. WORDELL and CARL A. ERIKSON. *"Largest of X-ray Departments." Modern Hospital,* Vol. 50, Feb. 1938, pages 56 to 58. 34-room department in St. Luke's Hospital, Chicago. Mr. Erikson is the architect.

• CARL A. ERIKSON. *"Planning the X-ray Department." Hospitals,* Feb. 1937, pages 74 to 88. Excellent functional analysis of the problem. 18 plan examples from hospitals designed by Schmidt, Garden and Erikson.

• R. A. RENDICH and C. B. BRÆSTRUP. *"Planning the Radiologic Department." Modern Hospital,* Vol. 45, Oct. 1935, pages 45 to 51. Detailed list of special requirements of rooms. Table of floor space requirements of radiologic department in hospitals of various sizes. Information on electrical power supply and wiring.

AIR CONDITIONING

• C. C. BURLINGAME, M.D. *"Air Conditioning Individualized." Modern Hospital,* Vol. 55, Aug. 1940, pages 80 to 86. Air supplied to six zones in building from an individual fan and humidifier for each zone. All fans are in a central room as are automatic temperature registration and centralized control devices.

• JOHN E. GORRELL, M.D. *"Comfort from Panel Cooling." Modern Hospital,* Vol. 54, May 1940, pages 94 and 96. Experimental system installed in one of the operating rooms at Blodgett Memorial Hospital, Grand Rapids, removes heat waves from the atmosphere to increase heat loss by radiation. Heat reflecting wall lining and cooled panels are components.

• ROBERT GRAHN and T. S. TENNEY. *"Piping Service Tunnel at Welfare Hospital." Heating, Piping,* Vol. 12, Mar. 1940, pages 168, 169. Section and pipe details, general description of tunnel which serves double purpose of walkway between buildings and pipe carrier.

• C. P. YAGLOU. *"Advantages and Limitations of Hospital Air Conditioning." Modern Hospital,* Vol. 53, July 1939, pages 50, 51. Unusual consideration of limitations.

• F. C. HOUGHTEN and LEIGH W. COOK. *"Air Conditioning Requirements of an Operating Room and Recovery Ward." Heating, Piping,* Vol. 11, June 1939, pages 381 to 387. Part of a study influenced by discoveries about air-borne infections of W. F. Wells and others. Tabulated results of experiments to determine comfort reactions toward varying atmospheric conditions in an operating room served by a specially designed air conditioning apparatus. Diagrammatic sketch of apparatus.

• C. P. YAGLOU. *"Application of Air Conditioning to the Treatment of Disease." Heating, Piping,* Vol. 9, Oct. 1937, pages 635 to 639. Ventilation measures to prevent explosions; conditions which meet differing requirements of patients and surgeons in the operating room. Air conditioning of nurseries for premature infants. Air conditioning in fever therapy, in control of allergic disorders and in oxygen therapy.

• VICTOR F. GRAHN. *"Hospital Air Conditioning." Architectural Record,* Vol. 82, July 1937, Building Types Section, pages 147 to 149. Discussion of air conditioning of operating rooms at Mt. Sinai Hospital with remarks on code requirements in New York City. The author is engineer of Tenney and Ohmes, Inc., Consulting Engineers.

• A. J. HOCKETT, M.D. *"Air Conditioning Operating Rooms." Modern Hospital,* Vol. 48, May 1937, pages 83 to 85. Detailed description of refrigerating equipment and duct work of a system installed in operating rooms at Touro Infirmary, New Orleans.

• A. J. LAWLESS. *"Air Conditioning System at Corey Hill Hospital." Heating, Piping,* Vol. 9, Mar. 1937, pages 155 to 159. Description of combination absorption and mechanical refrigerating system. Schematic diagram. The author is Sales Engineer in a division of B. F. Sturtevant Co.

• ALBERT G. YOUNG. *"The Status of Hospital Air Conditioning." Refrigerating Engineer,* Vol. 36, Dec. 1938, pages 361 to 365. A summary of the findings of medical experts relating to the air conditions needed in the treatment of various diseases. Recommended conditions for operating rooms, recovery rooms, nurseries.

• AMERICAN HOSPITAL ASSOCIATION. *Report of the Committee on Air Conditioning: Bulletin No. 119* (American Hospital Association, Inc., 18 East Division Street, Chicago, Illinois, 1934, price 50 cents). A practical consideration of the mechanical and financial aspects.

CONSTRUCTION

• ADDISON ERDMAN. *"Outlook on Windows." Modern Hospital,* Vol. 54, Mar. 1940, pages 79 and 80. Double-hung, projected and casement windows considered by an architect.

• LUCIUS W. JOHNSON. *"The Preferred Types of Construction Features." Modern Hospital,* Vol. 54, Mar. 1940, pages 74 to 78. Floor materials, sound control, explosion proofing, air conditioning, lighting, air pressure outlets, bathing facilities discussed critically by an officer in the Medical Corps, U. S. Navy.

• H. ELDRIDGE HANNAFORD. *"Analysis of Building Costs." Modern Hospital,* Vol. 53, Dec. 1939, pages 44 and 45. Comparative tables of cost analysis for three recently built general hospitals of fireproof construction. Percentage of cost of each branch of work to total cost. The author is a member of the firm of Samuel Hannaford and Sons, Architects, holds that such a table provides a guide to keep specification items in rational proportion to others when setting up a rough budget for a hospital.

• GILBERT D. FISH. *"All-Welded Building." Civil Engineering,* Vol. 8, April 1938, pages 237 to 239. Pavilion at N. Y. State Hospital, Brooklyn. Position of new building next to an existing hospital for mental patients was not in any way responsible for the selection of welding, because the choice was determined by cost alone, says the author proudly. Detailed description and drawings of joints. The author is a consulting engineer.

DECORATION

• FABER BIRREN. *"Functional Color in Hospitals." Modern Hospital,* Vol. 53, Nov. 1939, pages 65 and 66. Recommendation for colors in various rooms based on numerous psychological tests. The author is a leading authority on color.

• EMMA M. BAHNER. *"Which Color—and Where?" Modern Hospital,* Vol. 52, June 1939, pages 86 and 88. Decoration of the Jefferson Hospital at Philadelphia, discussed by its housekeeper. The program undertaken by an active Women's Board penetrated even to the men's special ward.

• MARTHA BLANCK. *"Pleasant Rooms for the Patient." Modern Hospital,* Vol. 48, May 1937, pages 88 and 90. Discussion of furniture and fabrics chosen for Orange Memorial Hospital, Orange, New Jersey.

ELEVATORS

• PERRY W. SWERN. *"Vertical Transport in Hospitals." Hospitals,* Feb. 1939, pages 13 to 18. Fundamental principles in selection and location of elevators for a hospital, based on conclusions following a survey of four hospitals in Chicago. "Everything that happened on these elevators over a twenty-four-hour period was clocked and checked and the accompanying graphs show some of the results," says the author.

EQUIPMENT

• LOUIS PARKER. *"Televised Operation." Architectural Record,* Vol. 86, Aug. 1939, pages 48, 49. Description of a television installation at Israel Zion Hospital having viewing screens in a training school auditorium distant from the operating room.

• *"Standards of Quality and Performance for Hospital Equipment and Supplies." Hospital Yearbook,* 1938 (Modern Hospital Publishing Co., Inc., 919 N. Michigan Ave., Chicago, Ill., $2.50). Written by doctors, architects and others expert in fields related to hospital planning, these include standards for anything from an autopsy table through plumbing equipment to wheel chairs, windows and X-ray film. "Items no substitute for ideas," warns Carl A. Erikson in his introduction to the check list.

LANDSCAPING

• HELEN SWIFT JONES. *"Plan First, Then Plant." Modern Hospital,* Vol. 54, April 1940, pages 45 to 48. Roof garden at Bellevue Hospital; Prospect Heights Hospital garden and the garden of Avery Convalescent Hospital, Hartford, Conn. The author is a landscape architect.

LIGHTING AND ELECTRIC WORK

• VICTOR B. PHILLIPS. *"Hospital Emergency Power Systems." Hospital Yearbook,* 1939, pages 737 to 742. Discussion of National Board of Fire Underwriters requirements and of storage batteries and generators which can be used to meet them.

• H. W. ALEXANDER, F. B. LEE and L. S. ICKIS. *"Lighting in the Hospital." Transactions of the Illuminating Engineering Society,* Vol. 33, June 1938, pages 523 to 544. Major part of this paper deals with operating room lighting. Diagram of methods of lighting the surgical field and chart for visibility and brightnesses during typical operations. List of references. H. W. Alexander is an employee of the American Sterilizer Company and F. B. Lee and L. S. Ickis are employed by General Electric Co.

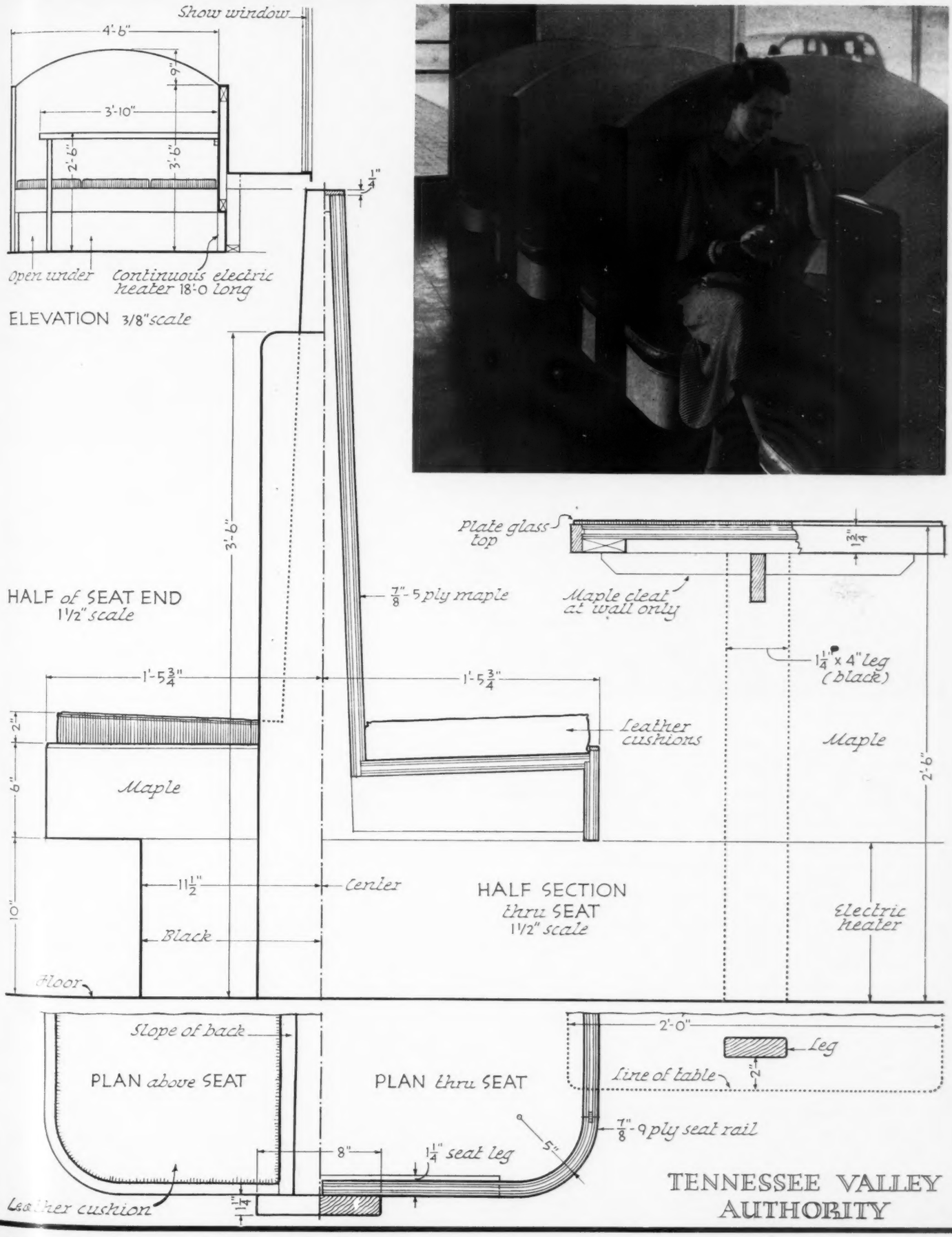
PLUMBING

• F. M. DAWSON. *"Pollution in the Plumbing." Modern Hospital,* Vol. 53, Dec. 1939, pages 80 to 84. Hazards in back siphonage and cross connections; protective measures discussed by the dean of the College of Engineering, University of Iowa.

• R. STARR PARKER. *"Hospital Piping." Modern Hospital,* Vol. 53, Aug. 1939, pages 80 to 86. Unusually frank discussion of the qualities and limitations of various kinds of pipe and pipe coverings.

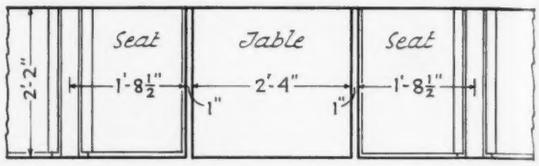
REFRIGERATION

• A. J. HOCKETT. *"Essentials for Proper Refrigeration." Modern Hospital,* Vol. 52, June 1939, pages 66 to 72. Main kitchen and departmental refrigeration requirements discussed by the Superintendent of Touro Infirmary.

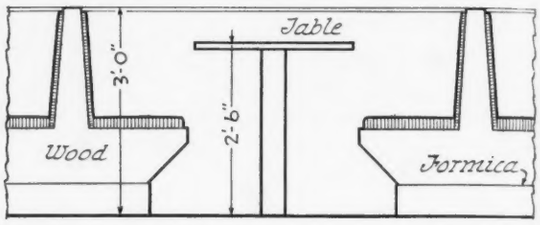


TENNESSEE VALLEY AUTHORITY

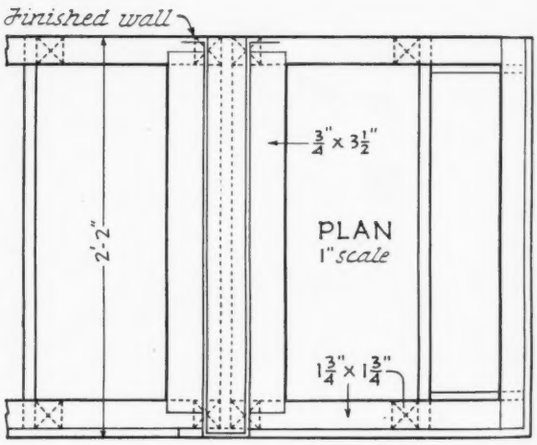
ROBERT M. DAMORA

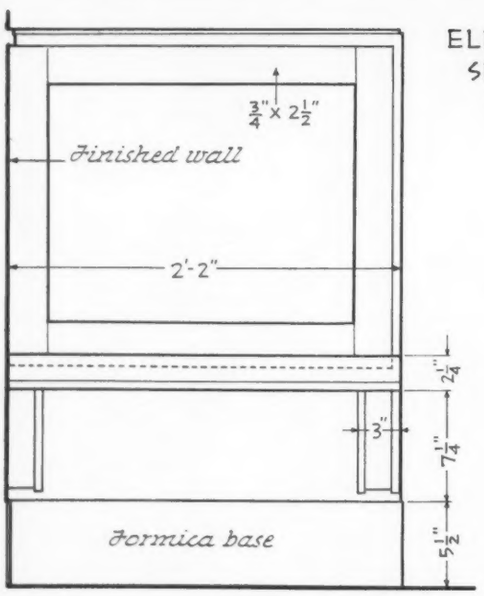


PLAN *of* SEATS 3/8" *scale*

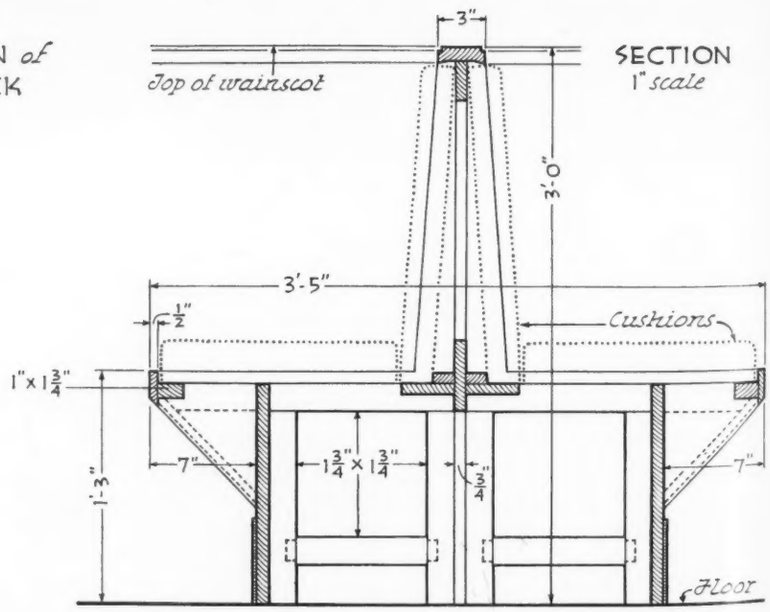


ELEVATION *of* SEATS



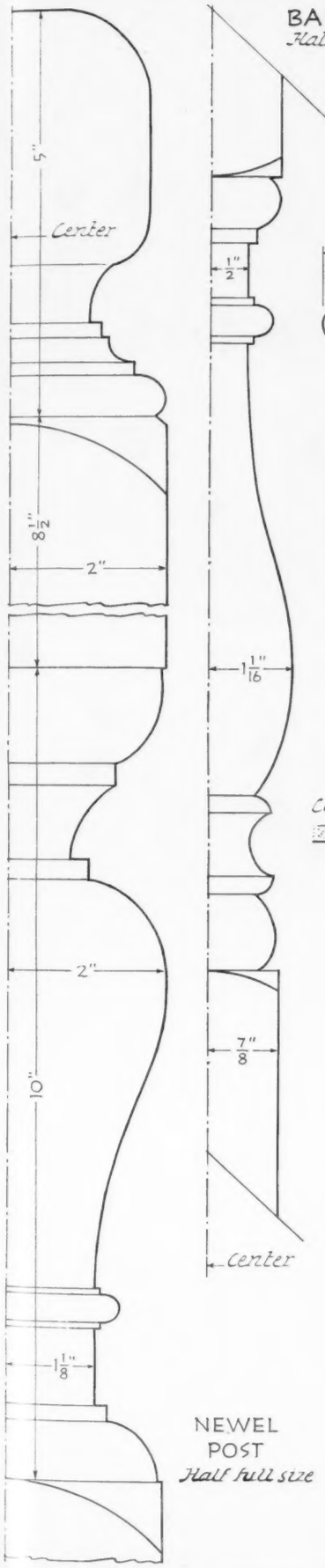


ELEVATION *of* SEAT BACK
1" *scale*

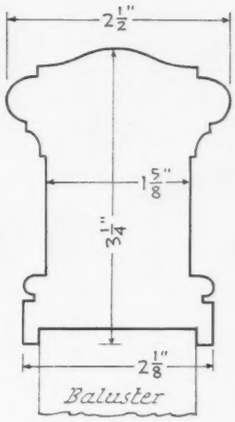


SECTION
1" *scale*

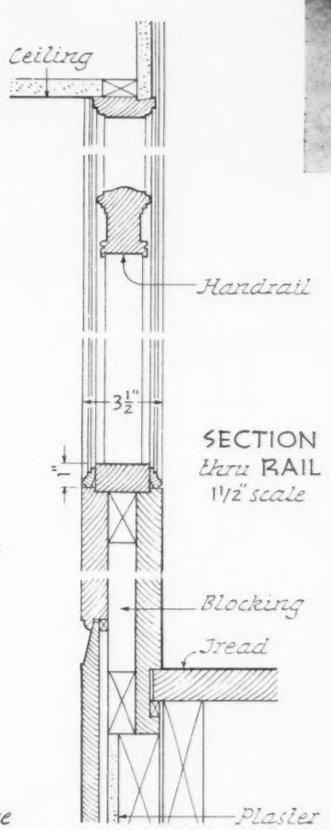
LOUIS ALLEN ABRAMSON . . . . . *Architect*



BALUSTER
Half full size



HANDRAIL
Half full size

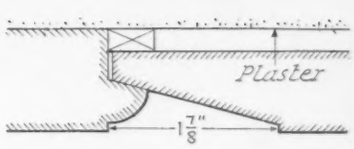


SECTION
thru RAIL
1½" *scale*

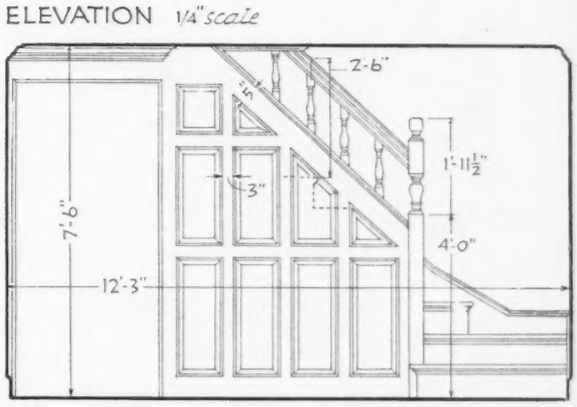
NEWEL
POST
Half full size

GEORGE H. VAN ANDA

PANEL MOULD
Half full size



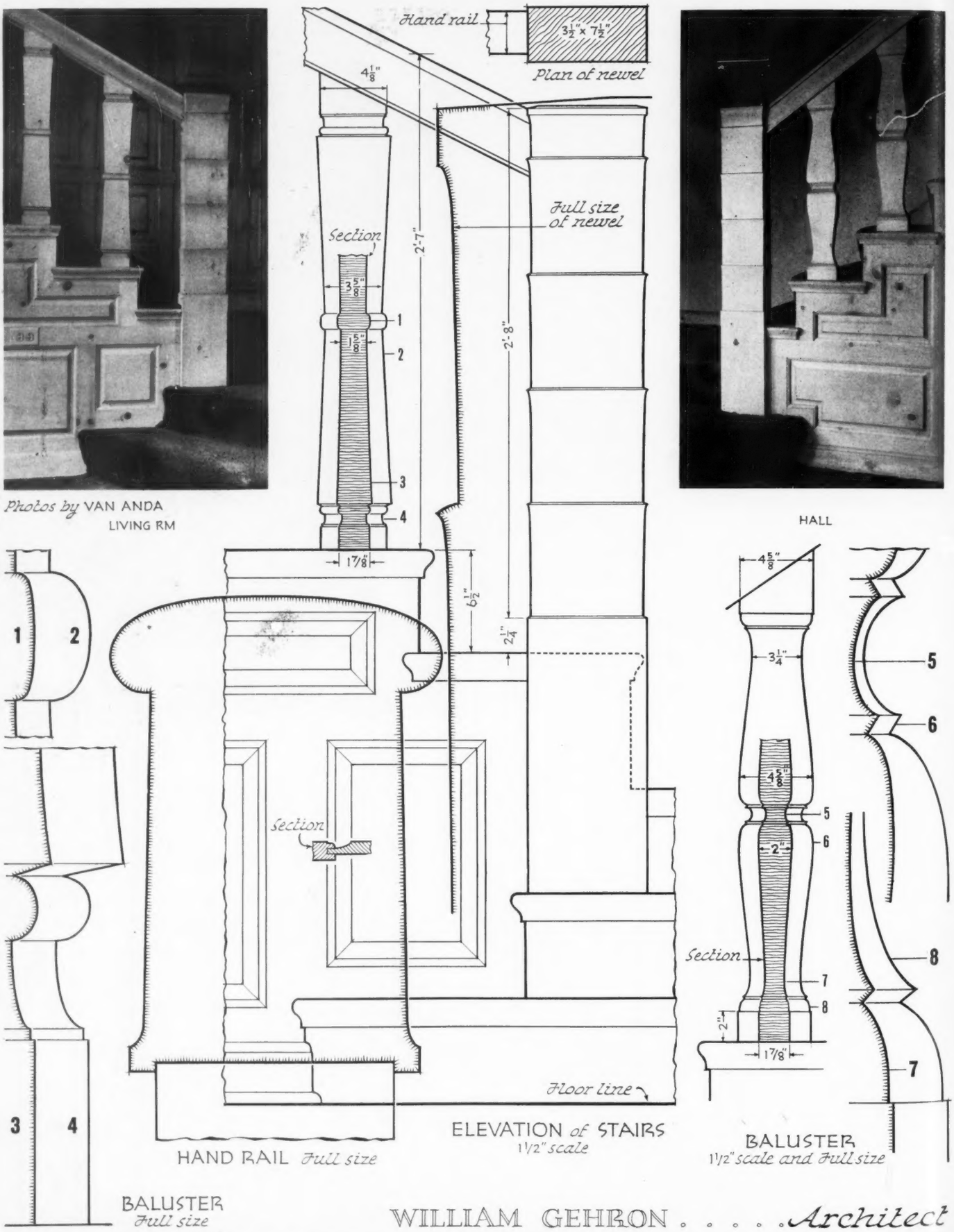
ELEVATION 1/4" *scale*



FRANK J. FORSTER . . . . . *Architect*

Photos by VAN ANDA
LIVING RM

HALL



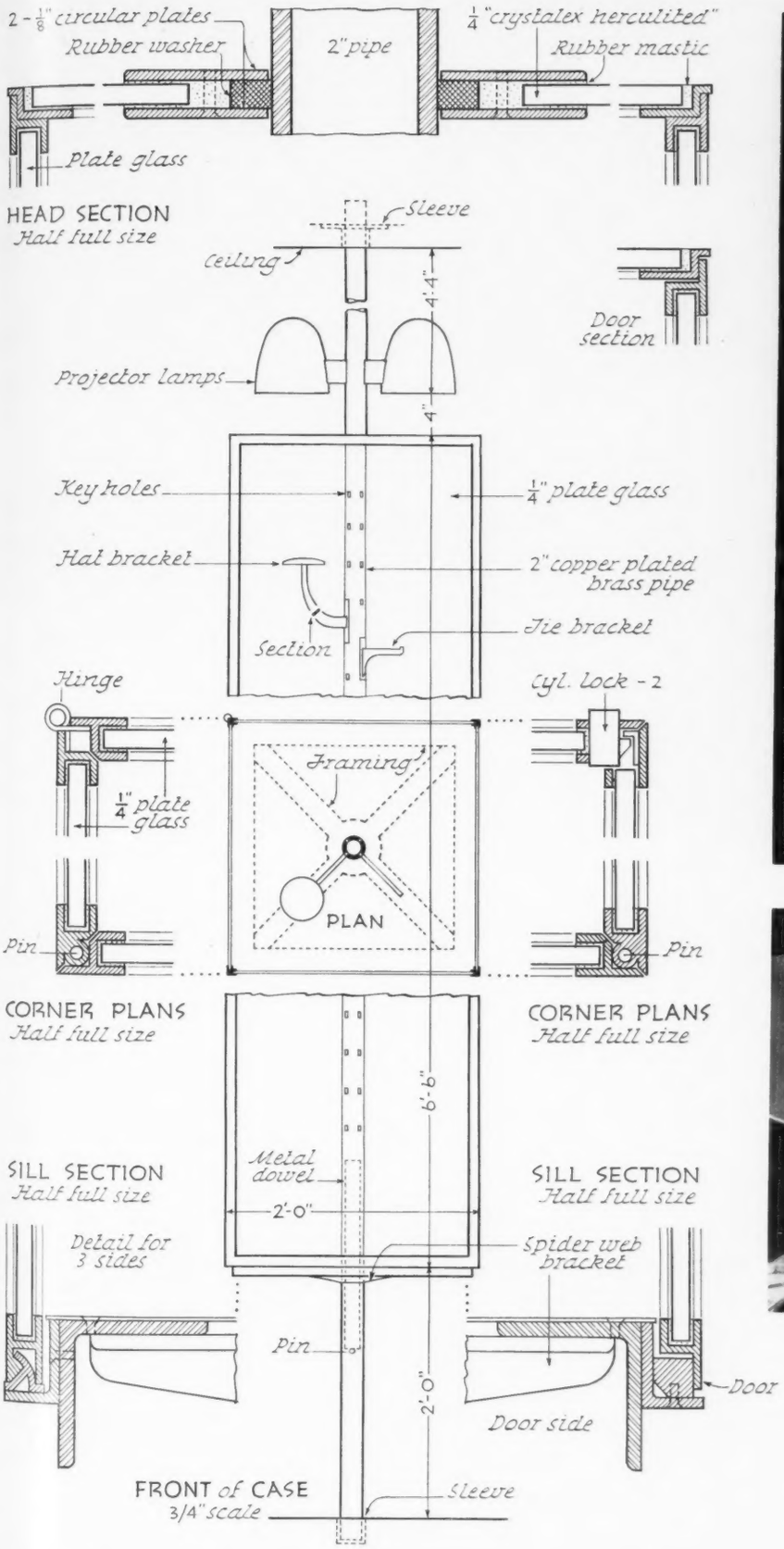
HAND RAIL *Full size*

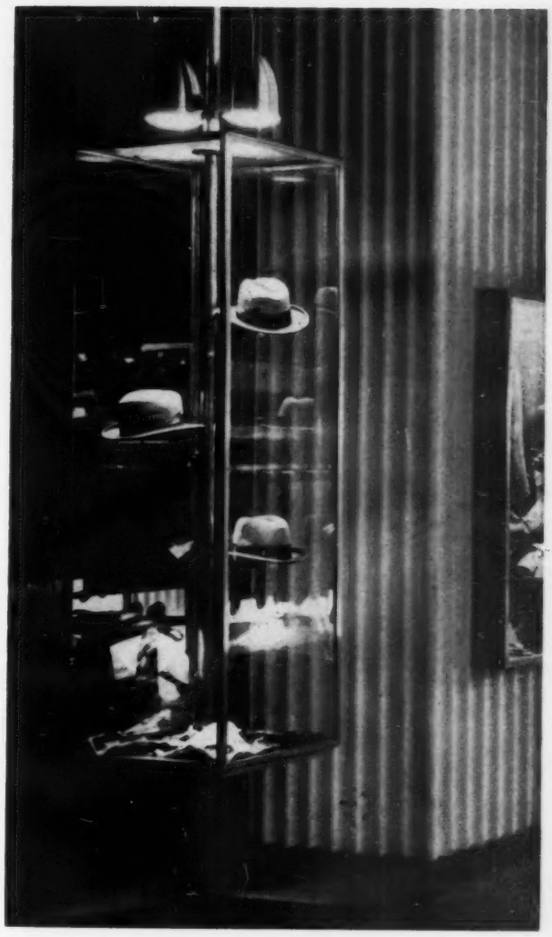
ELEVATION *of* STAIRS
1½" *scale*

BALUSTER
1½" *scale and Full size*

BALUSTER
Full size

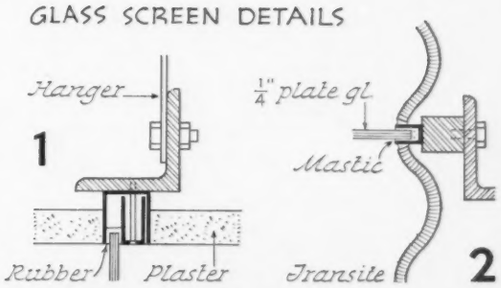
WILLIAM GEHRON . . . . . *Architect*



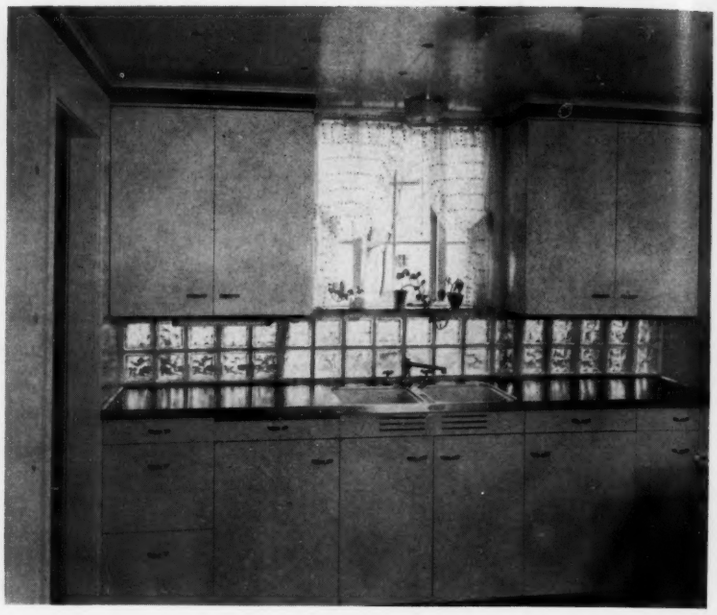


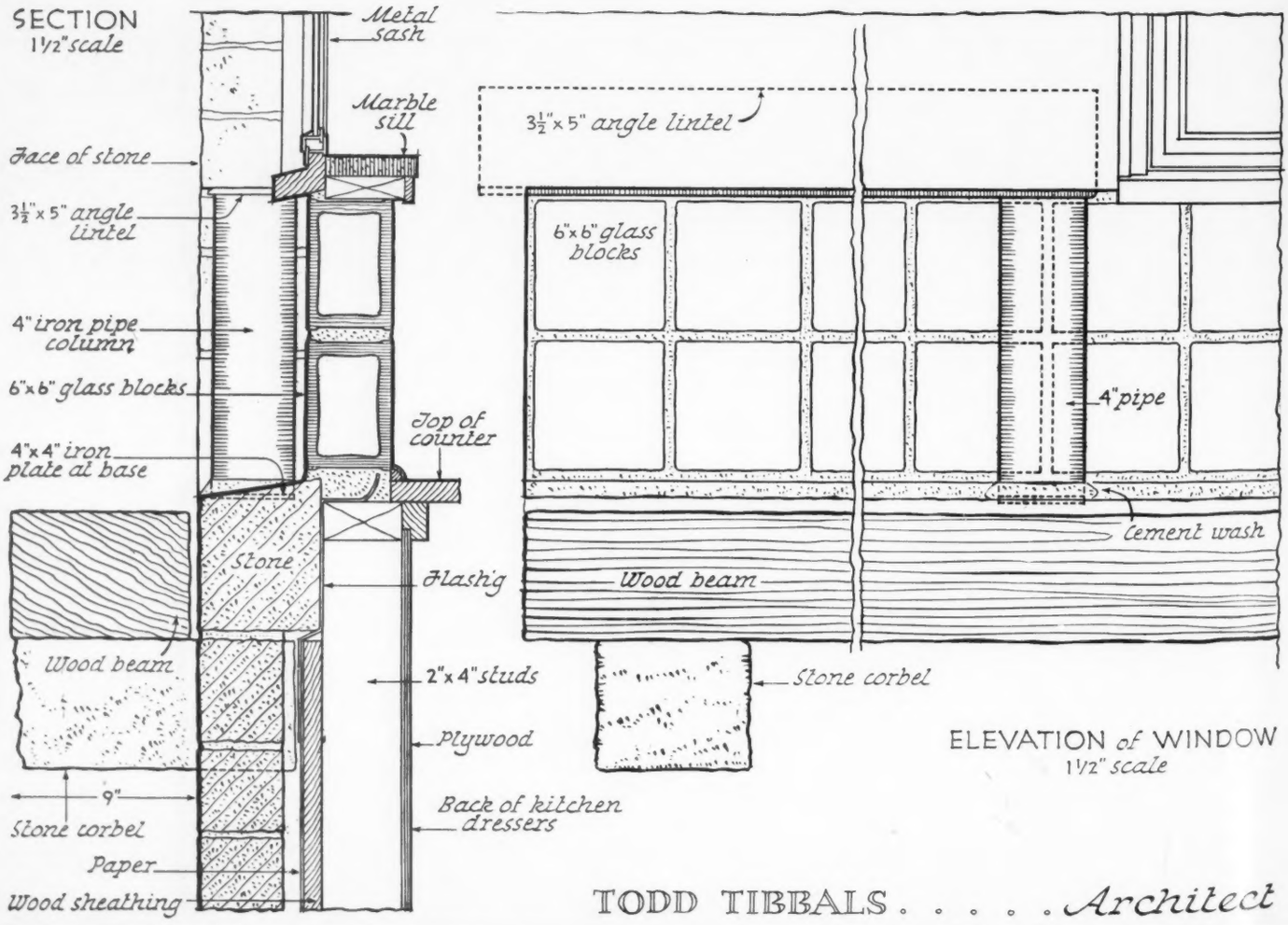
EZRA STOLLER

GLASS SCREEN DETAILS



MORRIS KETCHUM, Jr. . . . *Architect*
VICTOR GRUENBAUM ..... ASSOCIATE



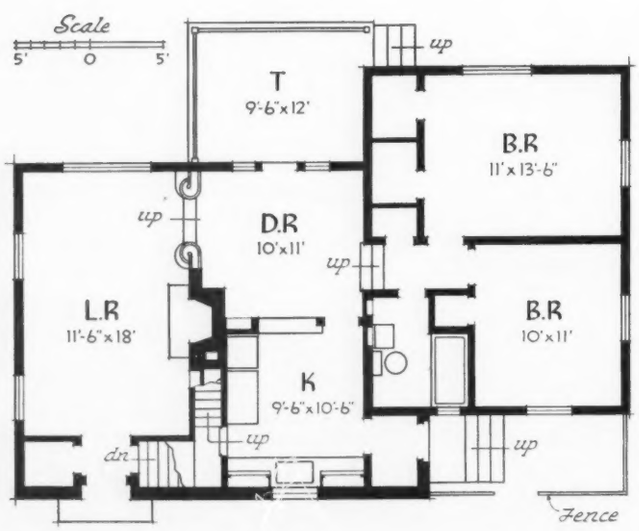


TODD TIBBALS . . . . . *Architect*

AN INTERESTING FEATURE OF THIS SMALL HOUSE DESIGNED FOR HIS OWN USE BY TODD TIBBALS, ARCHITECT OF COLUMBUS, OHIO, IS THE USE OF GLASS BLOCK UNDER THE KITCHEN WINDOW AT THE FRONT (SEE THE DETAILS ON PAGE 734). THE DESIGN WAS DICTATED BY THE SLOPING SITE AND BY THE PLEASANT WOODLAND SETTING—WHICH SUGGESTED AN INFORMAL TREATMENT. THE ENTRANCE AND LIVING ROOM, ON THE LEFT, ARE AT A LEVEL LOWER THAN THE KITCHEN AND DINING ROOM BEHIND IT, WHILE THE BEDROOMS AND KITCHEN TERRACE ARE AT A THIRD LEVEL, SEVERAL STEPS HIGHER. PHOTOS BY BAKER

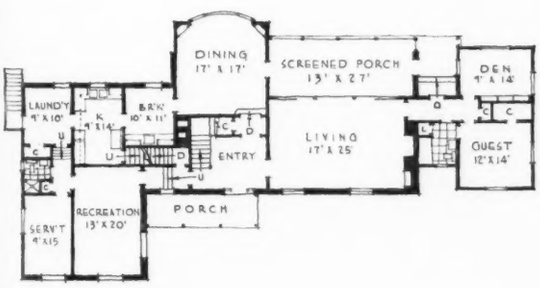
AN ARCHITECT'S HOUSE — BY TODD TIBBALS, COLUMBUS, OHIO

THE ENTRANCE TO THE TIBBALS' HOUSE IS FRAMED WITH DECORATIVE TILE AND THE LIVING ROOM FIREPLACE (ABOVE, RIGHT) IS ONE OF THE UNUSUAL INTERIOR FEATURES. IT SHOULD BE NOTED THAT THE PLAN (BELOW) INDICATES THE STEEPLY SLOPING SITE AND THAT THIS HAS BEEN FURTHER UTILIZED BY LOCATING THE GARAGE UNDER THE LIVING ROOM. THE ENTRANCE IS AT THE REAR, UNDER THE WIDE LIVING ROOM WINDOW, AND THE GARAGE IS REACHED EITHER FROM THE TERRACE AT THE REAR OR BY THE STAIR FROM THE FRONT DOOR

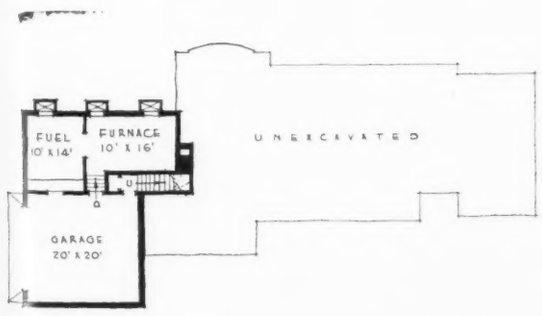


AN ARCHITECT'S HOUSE — BY TODD TIBBALS, COLUMBUS, OHIO

SECOND FLOOR

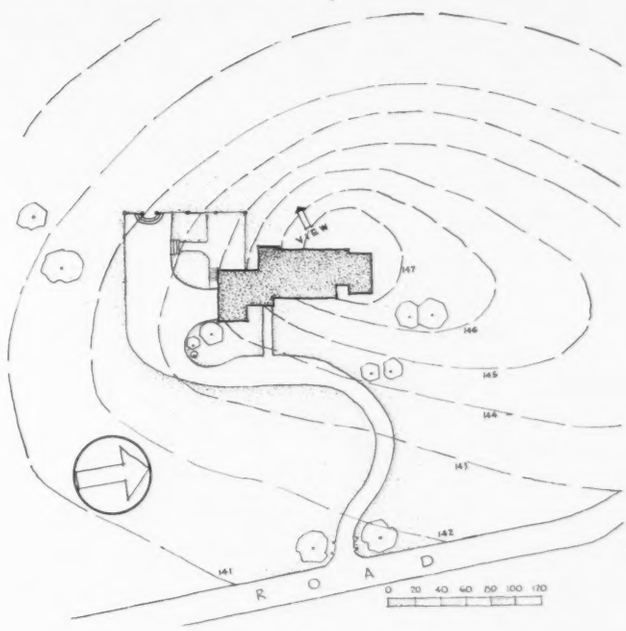


FIRST FLOOR



BASEMENT FLOOR

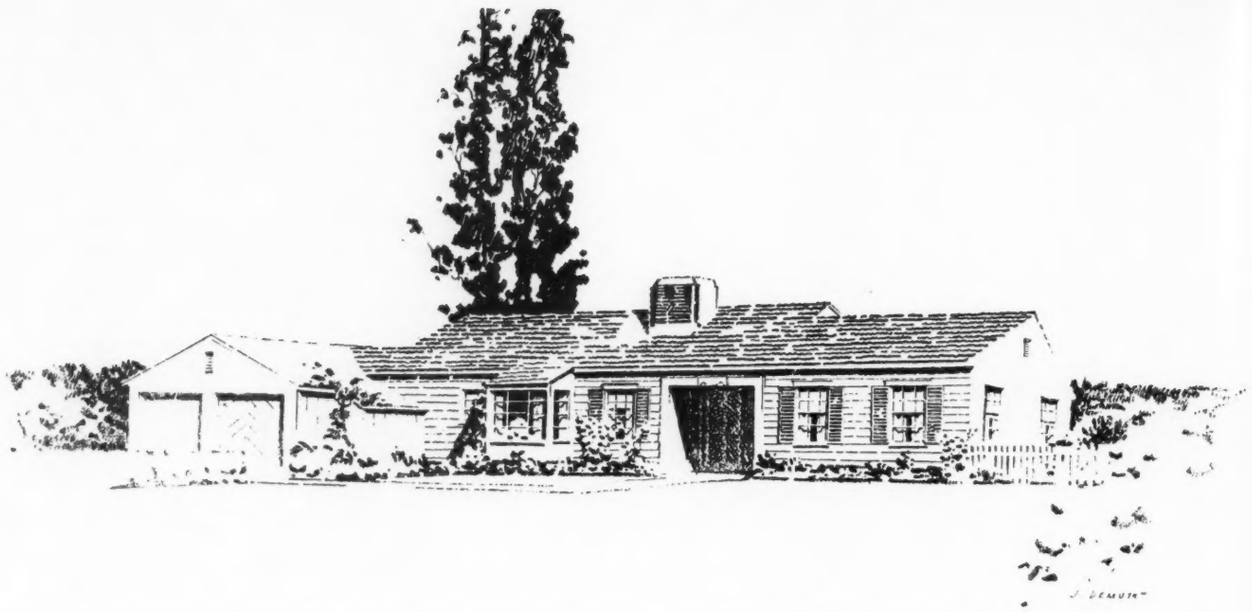
0 5 10 15 20 25



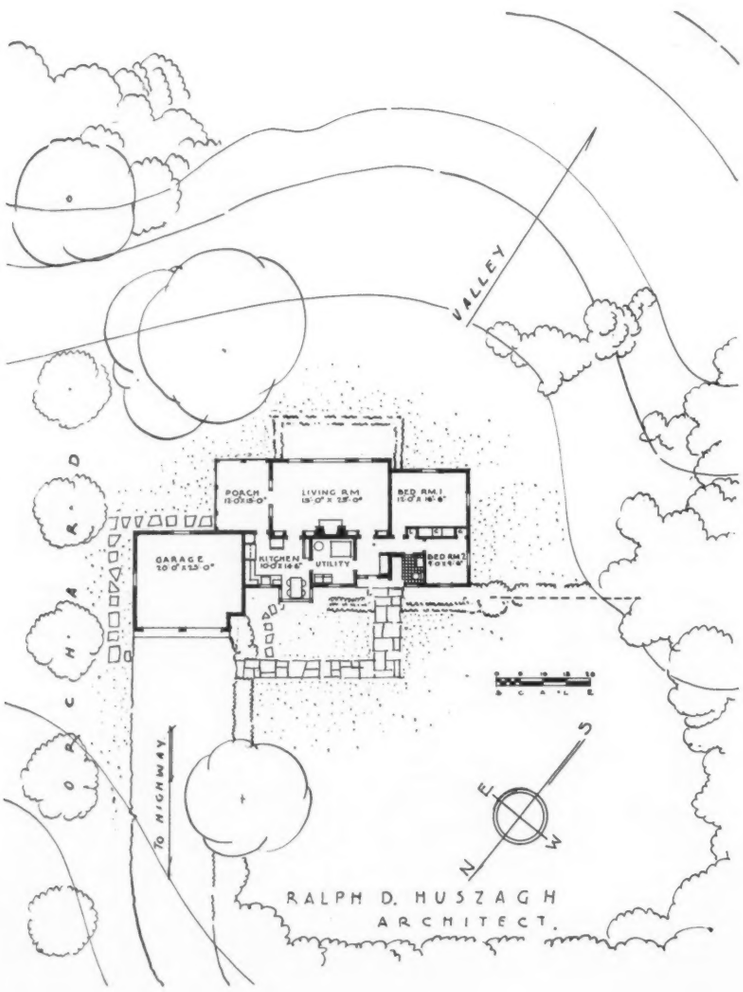
PLOT PLAN

A RESIDENCE FOR
MR. & MRS. ROBERT L. BEARE JR.
OLD MEDINAH ROAD · JACKSON, TENN.
LUCIAN MINOR DENT · ARCHITECT
A. L AYDELOTT · ASSOCIATE

A COUNTRY HOME—BY LUCIAN M. DENT AND A. L. AYDELOTT



THIS FRAME HOUSE WAS DESIGNED FOR LEE HICKOX AT BARRINGTON, ILLINOIS, BY RALPH D. HUSZAGH, CHICAGO ARCHITECT. IT OCCUPIES A KNOLL OVERLOOKING A VALLEY, ON A 20-ACRE SITE. FUTURE ADDITION OF BEDROOMS IS PLANNED BY DIVIDING BEDROOM NUMBER 2 INTO A PASSAGE AND DRESSING ROOM



A COUNTRY HOME—BY RALPH D. HUSZAGH, ARCHITECT, CHICAGO

PENCIL POINTS DATA SHEETS

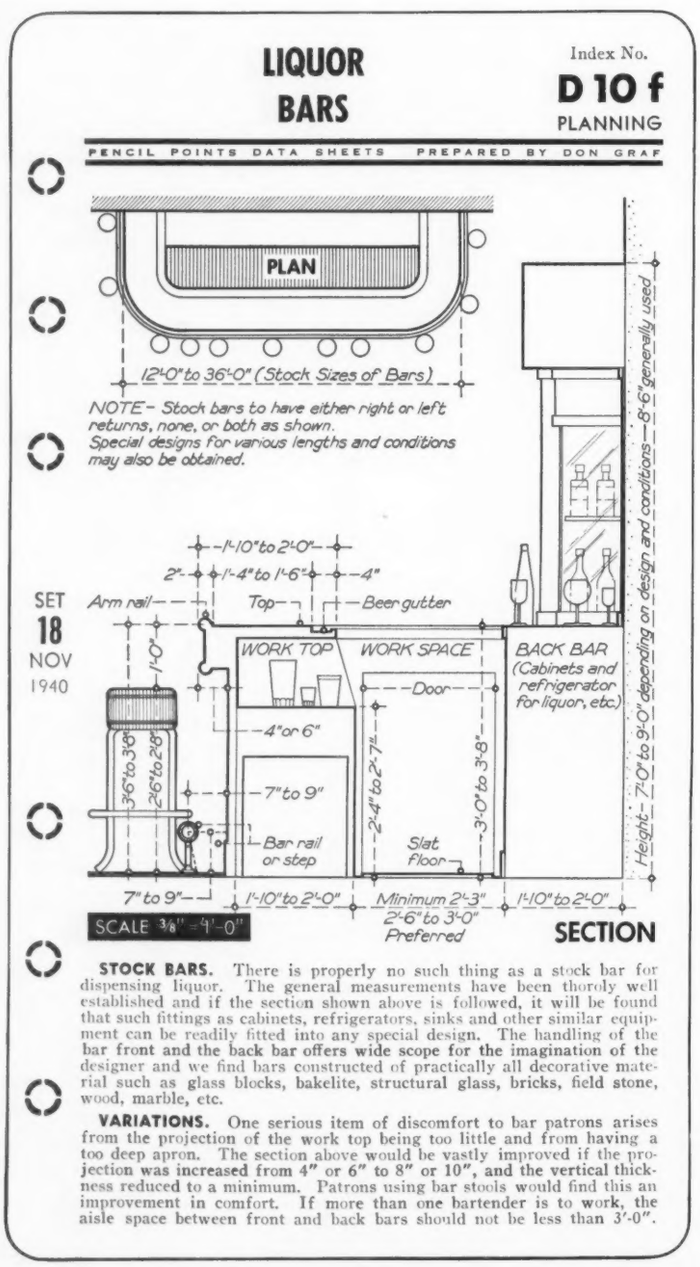
Prepared by DON GRAF, B.S., M.Arch.

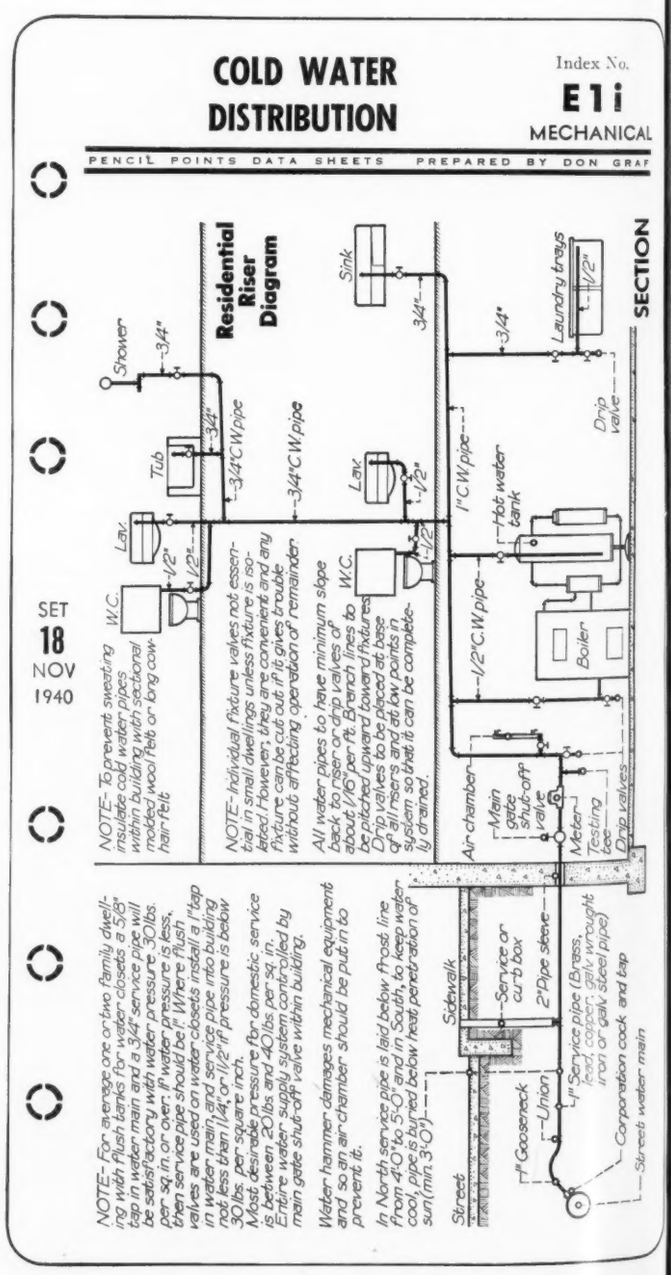
DISREGARD OF THE OBVIOUS

Wish we could remember the name of the writer who had a piece in a magazine that we were reading last week. He said he was working on a cigarette which did not satisfy, was full of harsh irritants, did not smoke 20% longer, was no cooler and had no extra flavor, wasn't toasted, was not made from costlier tobaccos and would be regarded with *dis*favor by all independent tobacco auctioneers. We hope this gentleman proceeds apace with his experiments. We also hope that he brings out clearly the properties in advertising. His cigarette should be an extremely worthwhile contribution to the health and well-being of the nation.

We want to go on record as pledging to smoke nothing else when these butts are made available!

We think most architectural men find in consumer advertising an unfailing source of wonderment. The tripe that passes for "advertising appeal" in the consumer brackets approaches unbelievably abysmal depths of inanity. We heard of a fellow who ingested a few swallows of white shoe polish, accidentally mistaking it for milk of magnesia. His radio happened to be turned on, and about the time he discovered his error a hand-lotion


LIQUOR BARS
Index No. D 10 f
PLANNING
PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF
PLAN
12'-0" to 36'-0" (Stock Sizes of Bars)
NOTE- Stock bars to have either right or left returns, none, or both as shown. Special designs for various lengths and conditions may also be obtained.
SET 18 NOV 1940
Arm rail
Top
Beer gutter
WORK TOP
WORK SPACE
BACK BAR (Cabinets and refrigerator for liquor, etc.)
Door
4" or 6"
7" to 9"
Bar rail or step
Slat Floor
Height- 7'-0" to 9'-0" depending on design and conditions—8'-6" generally used
SCALE 3/8" = 1'-0"
SECTION
STOCK BARS. There is properly no such thing as a stock bar for dispensing liquor. The general measurements have been thoroly well established and if the section shown above is followed, it will be found that such fittings as cabinets, refrigerators, sinks and other similar equipment can be readily fitted into any special design. The handling of the bar front and the back bar offers wide scope for the imagination of the designer and we find bars constructed of practically all decorative material such as glass blocks, bakelite, structural glass, bricks, field stone, wood, marble, etc.
VARIATIONS. One serious item of discomfort to bar patrons arises from the projection of the work top being too little and from having a too deep apron. The section above would be vastly improved if the projection was increased from 4" or 6" to 8" or 10", and the vertical thickness reduced to a minimum. Patrons using bar stools would find this an improvement in comfort. If more than one bartender is to work, the aisle space between front and back bars should not be less than 3'-0".


COLD WATER DISTRIBUTION
Index No. E 1 i
MECHANICAL
PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF
SET 18 NOV 1940
Residential Riser Diagram
SECTION
Shower
Tub
Lav.
W.C.
Sink
Laundry trays
Hot water tank
Boiler
Drip valve
Air chamber
Main gate shut-off valve
Meter
Testing tee
Drip valves
Service or curb box
2" Pipe sleeve
Union
Gooseneck
Corporation cock and tap
Street water main
Sidewalk
Street
NOTE- To prevent sweating insulate cold water pipes within building with sectional molded wool felt or long cow-hair felt
NOTE- Individual fixture valves not essential in small dwellings unless fixture is isolated. However, they are convenient and any fixture can be cut out if it gives trouble without affecting operation of remainder
All water pipes to have minimum slope back to riser or drip valves of about 1/16" per ft. Branch lines to be pitched upward toward fixtures
Drip valves to be placed at base of all risers and at low points in system so that it can be completely drained.
Water hammer damages mechanical equipment and so an air chamber should be put in to prevent it.
In North service pipe is laid below frost line From 4'-0" to 5'-0" and in South, to keep water cool, pipe is buried below heat penetration of sun (min 3'-0")
NOTE- For average one or two family dwelling with flush tanks for water closets a 5/8" tap in water main and a 3/4" service pipe will be satisfactory with water pressure 30 lbs per sq. in. or over. If water pressure is less, then service pipe should be 1" Where flush valves are used on water closets install a 1" tap in water main and service pipe into building not less than 1 1/4" or 1 1/2" if pressure is below 30 lbs. per square inch.
Most desirable pressure for domestic service is between 20 lbs and 40 lbs per sq. in.
Entire water supply system controlled by main gate shut-off valve within building.

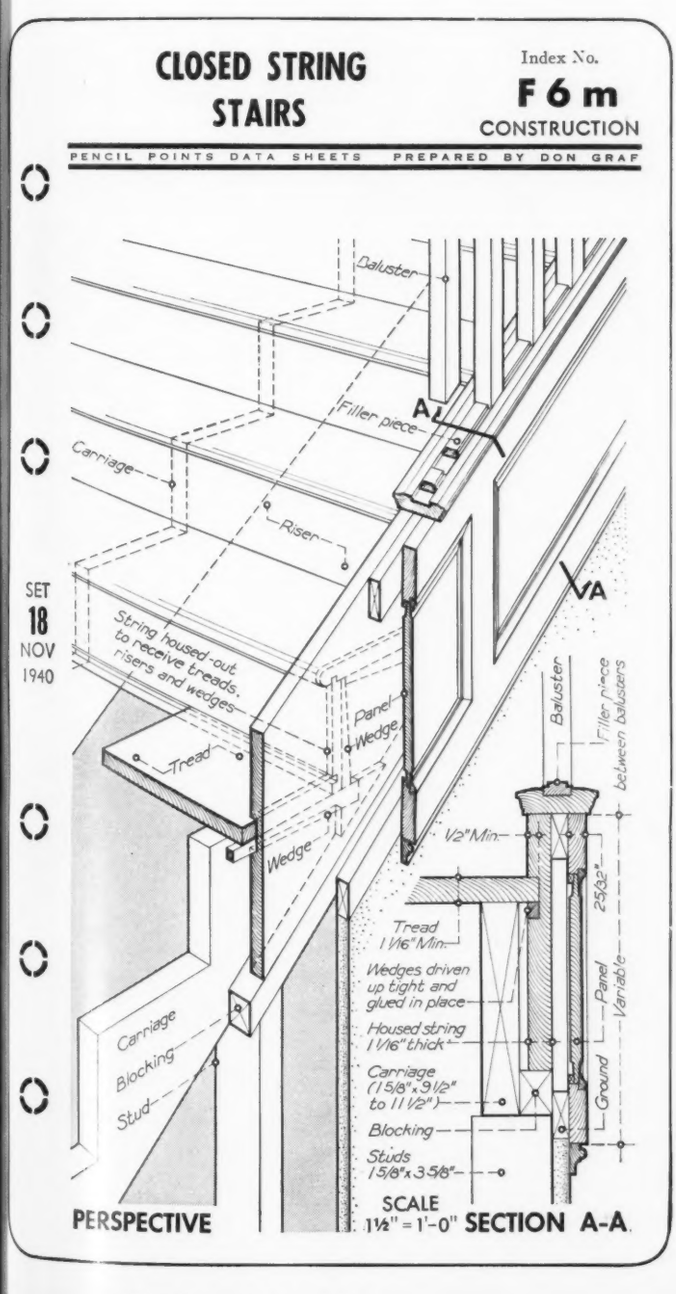
commercial came blaring over the loud speaker. Instead of taking warm water and flour, he merely listened to a half-minute of over-hearty, over-friendly, gushy drool about *romantic hands*. The emetic effect was almost instantaneous.

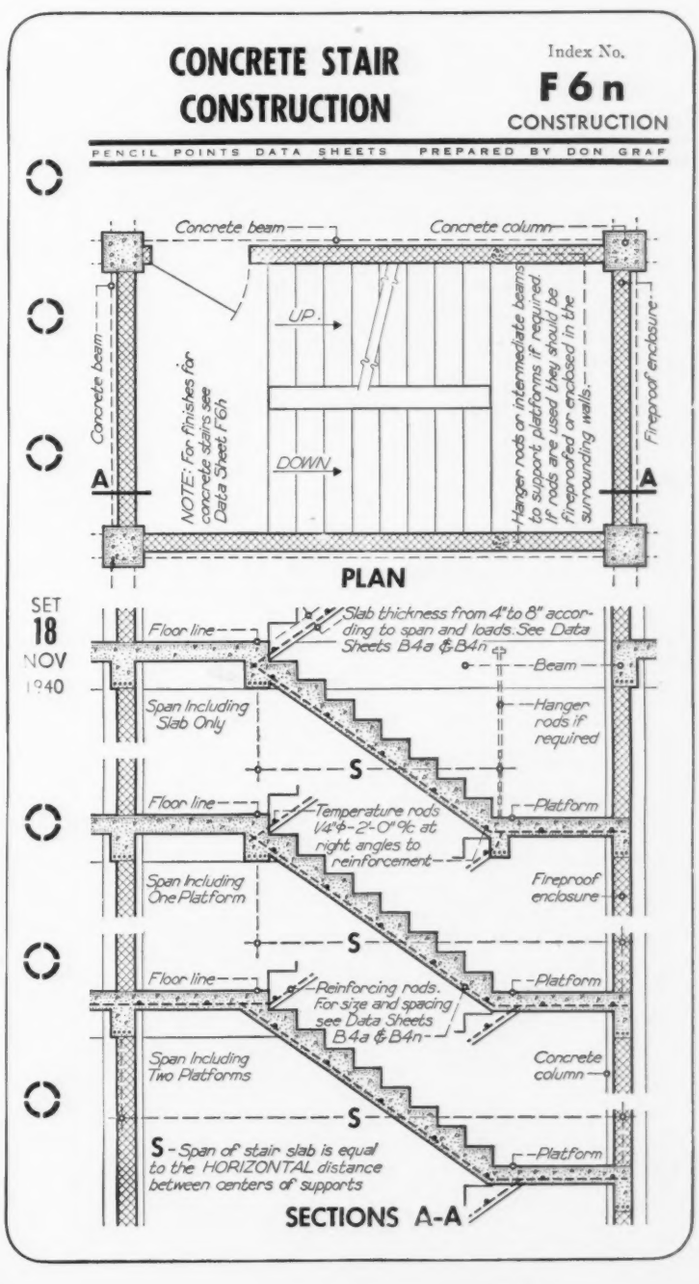
Luckily it is only on rare occasions that the consumer approach finds its way into architectural advertising. For some twenty years we have been on the lookout for specimens in architectural magazines. There are remarkably few pages in our folder of horrible examples. There should be none! Once in a blue moon an advertising agency decides that architects are human beings. The consequence of this debatable conclusion is that the way to reach them with an advertising message is no different than that of reaching Mrs. Elmer Snoddy of East Hohokus with an irresistible sales talk on Wheaties for her little boy, Rollo.

It has been calculated that in one year, during what Westbrook Pegler calls the Era of Wonderful Nonsense, the average architect received 70 pages of printed matter each working day. Theoretically he was supposed to read all this. Just how he was supposed to perform his professional duties in the remaining time is another of those unexplained advertising mysteries.

We think that consumer advertising is effective in selling consumer goods—and the sloppier the better. We also think that by far the largest percentage of architectural advertising is effective—the more factual the better.

But never the twain should meet.




CONCRETE STAIR CONSTRUCTION
Index No.
F 6 n
CONSTRUCTION
PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF
SET 18 NOV 1940
Concrete beam
Concrete column
Concrete beam
UP
DOWN
NOTE: For finishes for concrete stairs see Data Sheet F6h
Hanger rods or intermediate beams to support platforms if required. If rods are used they should be fireproofed or enclosed in the surrounding walls.
Fireproof enclosure
A
A
PLAN
Floor line
Slab thickness from 4" to 8" according to span and loads. See Data Sheets B4a & B4n
Beam
Span Including Slab Only
Hanger rods if required
S
Floor line
Platform
Temperature rods ¼"ϕ-2'-0" c. at right angles to reinforcement
Span Including One Platform
Fireproof enclosure
S
Floor line
Platform
Reinforcing rods. For size and spacing see Data Sheets B4a & B4n
Span Including Two Platforms
Concrete column
S
Platform
S - Span of stair slab is equal to the HORIZONTAL distance between centers of supports
SECTIONS A-A

ARCHITECTS AND THE A.R.P.

BY SERGE CHERMAYEFF

PENCIL POINTS *is performing an enormously important task in bringing A.R.P. forward as a matter meriting the attention of Architects at this moment. Having been directly concerned with the same problem in a country now actually at war, I felt privileged in having been asked to make a contribution in this connection.*

The appeasement policy of the Chamberlain Government forced the hand of many technicians, who were of a different mind, as early as the spring of 1938, to make an objective inquiry into A.R.P. ex officio. *These technicians, scientists and Architects examined the then available published data, and the first-hand evidence of the Sino-Japanese and Spanish Wars. Their findings on general policy and on detailed method have been proved valid by the actuality of war, particularly in its latter stages as reported from England.*

In view of the strict censorship now prevailing it is impossible to judge the efficacy of a number of details. A very thorough survey of conditions on site would be necessary for that. No doubt such observations are now being made—but the results will not be available soon enough for the purposes of the necessary, immediate action here. I say immediate and necessary advisedly. For the general principles hold good, even in their modified form, for the U.S.A. They are immediate because like all other essential organization for a possible conflict, they involve very careful preparatory stages to be finally effective. S.C.

It is the purpose of this short statement to discuss A.R.P. general principles only and to put forward, in the form of an outline, activities for detailed examination and application later. Many of the tragedies we have learned about might have been avoided if the recommendations made some two years ago had been adopted. The principal one was that A.R.P. is not a problem of *separate water-tight compartments* but a problem of a *large comprehensive plan.* Only when A.R.P. is considered in terms of prevention or minimization of air attack effect on the whole pattern of the community does the broader concept of plan emerge above the detailed measures — within the framework of which the contributions of all technicians, among them Architects, become effective.

Broadly, A.R.P. has to deal with two things: The maintenance of production; and the preservation of life and morale. Again, in broad terms, the method of achieving this is by one of two methods: The removal of the objectives of attack to a safe or inaccessible or relatively safe area; and the provision of maximum protection on the spot, where such removal or evacuation is for whatever reason impracticable.

The first of these groups, concerned with maintenance of production, is principally composed of the elements of industry, services and power, and transport. The increased production of certain things for war purposes entails either the expansion of existing centers of production and all that it implies in terms of *housing*, social services, educa-

tion, health, etc., for the workers concerned; or the creation of entirely new centers with the same elements.

In either case it is essential that the vast sums required for this purpose be expended in the wisest way possible. Even if the immediate gravity of the situation did not demand it, it is surely obvious that the best minds should be applied to the planning and construction and equipment involved in the creation of such communities. Apart from the efficiency necessary to the successful prosecution of war, it is as important that they should form part of an intelligently-conceived long term program of peacetime utilization. Public welfare—welfare affecting very large numbers—is involved in such a program, not only for the immediate present but for the longer period of war aftermath.

Hasty, ill-considered, and incomplete measures are being paid for dearly in Europe now and will perhaps exact an even graver price over many years from millions, long after the immediate war risk has passed. In the United States there is a *serious risk*, that bad "defense" housing today may prove to be the slums of tomorrow, which because of the enormous cost and effort involved will remain saddled on generations to come. Architects with a clear view of the social needs, the required planning, and construction can play a very important part in preventing such a disaster.

Apart from these long term considerations of planned A.R.P. in industry within the *"invulnerable"* areas there remains the problem of planning and structural precautions in industry which are in *vulnerable* parts of the country: some heads for research in this section are indicated in the outline attached to these general remarks. There is, of course, much data available for this purpose.

In the case of the civilian population, much of what has been said above applies. Again the method falls under the two general heads: the removal of the practicable maximum to safe areas, and the provision of *adequate* protection against all forms of air attack to the immovable minimum in the vulnerable area.

The first section involves a careful and complete survey of existing housing and all buildings connected with community life in invulnerable or what may become *reception area.* That is to say, a survey which will determine possible utilization of existing building before the intelligent planning of partial and whole new additions can be undertaken. It is extremely important to realize that such new communities or extension of old, if intelligently conceived, planned and executed, may become models of their kind in a long term program of peacetime housing. They may be the first step in accelerating decentralization, in breaking up the obsolete growth of congested cities—add an important quota to improved housing—which may have been more difficult or insufficient under normal conditions.

Architects may find it possible within such a program to do the right things for the wrong reasons!

Within the vulnerable areas there is also a giant preliminary task to be done. That of survey or correlation of available data of population density, topographical characteristics, services, structures, communications. Without such a preliminary survey no useful steps can be taken with regard to evacuation or the protection of those who remain behind. Architects could play a major part in such preliminary work. When this is accomplished their subsequent task of solving detailed problems of A.R.P. against all the different forms of known attack becomes relatively simple. It is only when this data has been thoroughly sifted that protection measures can be made effective.

For instance, in the case of the provision of shelters against H.E. (high explosive), number, size, type and distribution of shelters can only be ascertained when this data is available. Further the position of the objective, i.e. its relation to the attacking force, will determine the warning period for the users, and will in its turn affect the design and distribution of the shelters.

This example suffices to show that a shelter is governed by many considerations not immediately apparent and which can only become clear when the problem has been stud-

SUGGESTED OUTLINE OF POSSIBLE A.R.P. ACTIVITIES FOR ARCHITECTS*

PREPARATORY WORK

1. Organization of Architects for action.
2. Plan for collaboration with Federal, Regional, State, Municipal and other bodies who could assist in this work.
3. Survey of Forces of labor, building, constructing, material supply.
4. Study of Camouflage.

WORK IN RECEPTION AREAS

A. Production:
   1. Survey of existing conditions.
   2. Zoning and Planning and designing for new Industry, or extension to existing
      - housing,
      - community buildings,
      - hospitals,
      - schools,
      - occupational training centers,
      - canteens,
      - recreational centers.

B. Evacuation:
   1. Survey of existing
      - housing
      - community buildings, as above,
   2. Planning and Designing
      - alterations and additions,
      - entirely new housing, etc.
      - Special War purpose buildings.
      - training centers,
      - warehouses for material,
      - barracks, etc.

WORK IN VULNERABLE AREAS

A. General:
   1. Survey and correlation of data on
      - population densities,
      - distribution of industry,
      - communications,
      - housing, etc., as before,
      - services.
   2. Survey of structure for classification
      - safe,
      - could be rendered safe,
      - dangerous, with reference to
        - H.E.
        - incendiary,
        - gas, etc.
      - historical and art treasures for special protection.

B. Production:
   1. Planning and Design of special war purpose structure, etc.
      - minimization of effect of H.E.
      - protection of vital equipment,
      - structural precaution against incendiary bombs.
   2. Black out.
      - light exclusion,
      - special lighting forms.

C. Population:
   1. Shelters against H.E.
      - in existing buildings,
      - new shelters,
      - signalling for above,
      - directional signs, etc.
   2. Structural Protection against Incendiary bombs, in residential areas.
      1. Black out.
         - light exclusion,
         - special lighting forms.
      2. Casualty stations.
         - and special hospital protection for surgeons, medicine, etc.
      3. Fire fighting stations.
      4. Canteens.
         - communal feeding for workers whose families are evacuated.

WARTIME SERVICE

Inspection of damage to Buildings,
- Services,
- Lines of communication.

Debris clearing,
Emergency repairs,
Assessment of damage for compensation.

* *Obviously this outline is full of gaps. It may, however, serve to indicate the main heads of activity in which Architects could usefully participate both in the preliminary stages of analysis, and then in execution of actual A.R.P. planning and building and perhaps wartime contribution, so that their training and knowledge may be used to the best advantage.*

ied as a whole. There is an abundance of reports which indicate that hundreds, if not thousands, of lives have been lost, through lack of such planning.* That immense interruption and loss of production *might* have been prevented.

One can only guess at the psychological strain of the survivors, who have seen people buried in buildings which should have been emptied after being condemned as dangerous. The loss of confidence, after seeing the destruction of an allegedly "bomb proof" shelter. And when winter sets in we may learn of the appalling consequences, physical and psychological, of inadequate protection in communal or family trenches (Anderson shelters) for those who, escaping the effect of direct hit and saved from secondary effects of blast and splinter, may yet find themselves crippled by either exposure or the nervous strain of prolonged insecurity and noise.

This country is arming for defense. A.R.P. is an essential part of such a program. A part which is immensely important and concerns the whole people. The architect can make his vital contribution, both to make defense effective in the unhappy contingency of war and in the long term program of public welfare which may be the prevention of this calamity. In order to be in position to do so, Architects must organize for creative collaboration with other scientists and technicians *now*, if A.R.P. is to be effective.

* EDITOR'S NOTE: *In a late issue of "The Architects' Journal" received from London, the Editor of the Journal reports, as of October 3rd:*

"It has proved impossible to guarantee a ten-minute warning period of all raids, and every London borough has had at least ten false alarms for every warning which has been followed by bombs being dropped in that borough. These factors would have proved a disastrous drawback—as far as day raids are concerned —to a deep shelter policy had it been carried out.

"On the other hand, the Government's policy of small dispersed shelters possesses grave drawbacks under conditions of continuous 6- or 8-hour night raids, and has failed to take sufficient account of the special circumstances of densely populated districts. And it is the two problems in conjunction—night raids on closely populated areas—which, in the Journal's view, demands immediate action. For there is no reason to suppose that night raids will diminish in intensity in the next few months . . .

"The problem is urgent. The Government has recognized its urgency by obtaining within a week a medical report on conditions in the Tube stations at night, by announcing that millions of bunks and earplugs will be supplied. But the reports that the provision of surface and ordinary basement shelters is to be speeded up in the vulnerable areas implies that the psychological urgency of the situation—and its structural implications—is not yet recognized. It is imperative that it should be recognized.

"People in the areas which have suffered most will not go to surface shelters if they can avoid doing so— and they will go to great lengths to avoid doing so. They cannot sleep in surface shelters because of the noise, and they have seen, or heard exaggerated stories about, the results of direct hits on them. They go to tubes or shelters, safe or unsafe, under large buildings.

"The Government and local authorities must make up their minds now whether to accept and act on this preference or run counter to it. The probability of continuous 12-hour night raids during the winter makes acceptance the wiser and better course on every important ground. There is no difficulty about proper warning of night raids, the bombing is never intense, and large shelters can be far more easily controlled, heated, ventilated, and equipped than small shelters."

FISHERMEN AT MORGAT, BRITTANY

LESSON 8—STRUCTURE AND FOLIAGE OF ELM TREES

PENCIL BROADSIDES—8

BY THEODORE KAUTZKY

One of the loveliest of our American trees is the elm. Despite the ravages of diseases and parasites and destructive storms, this graceful tree is still found in great numbers distributed through the greater part of this country. Sketchers of landscape in the open country or in villages and towns are sure to encounter the elm sooner or later and should therefore be prepared to express it convincingly with their pencils.

In general form, the skeleton of the elm might be approximately contained within a narrow inverted cone, at least until it nears the top of the tree. Here, its limbs curve out gracefully and continue into the smaller branches which bend down under the weight of the leafage. Perhaps the general movement might be compared to that of a jet of water in a fountain, which expands as it rises and finally dissolves into falling drops arching down from its crest.

The trunk of the elm is substantial. Its lower portion thickens at the base and merges into roots extending downward like great fingers designed to achieve a firm grasp of the soil. Its upper part divides as it begins to spread outward, at a height of perhaps ten to twenty feet above the ground, into continuously tapering limbs. A section through the trunk of the mature tree is commonly not circular but shows bulges which indicate the beginnings of the limbs. These bulges become more pronounced as the point of division is approached, so that they develop naturally into the free-standing limbs above.

The crown of the tree tends to take the form of an arch, or rather a dome, which is filled out more or less according as the tree has a full, healthy growth or is thinly developed for lack of nourishment or otherwise.

The little sketch in the upper left of the accompanying plate indicates the general envelope of the tree I have taken as my example. This has been more fully developed into the skeleton and foliage masses as seen at the upper right. As with the other trees we have studied, we begin our sketch in this fashion by establishing its essentials. I call attention again to the continuous and almost imperceptible tapering of the limbs as they grow upward and divide into smaller limbs and branches, ending in the delicate twigs to which the leaves are attached. Your lightly sketched layout should define this characteristic at least.

Assuming that you have already diligently practiced drawing other types of trees, the application of tones here will offer you no difficulties. Broad strokes by this time must come natural to you and you have wide freedom in choosing between lengthwise and transverse strokes to suit the needs of the moment.

In the sketch fully developed on the plate, it will be noted that I have used both types of stroke in modeling the trunk, limbs, and branches. Some of the strokes are curved to suggest the form of the limbs and define the shadows falling across them. As in the preceding lessons, where the limbs or branches occur against a background of foliage, they are left white. Where they are

seen against the sky they are dark in shadow, gray in light.

In expressing the foliage, short, broad strokes, slightly curving and following the general direction of the arching sweep of the tree's crown, are applied with values already decided upon in accordance with the way the light falls. The portions of the foliage receiving most intense light may be completely highlighted, suggested only by a few strokes around their edges or by silhouetting them against darker masses. Portions receiving normal light will be shown by various degrees of gray. Keep plenty of variety in these gray areas and allow bits of white to show through here and there. Watch the silhouettes of the edges of each group of leaves so that they will be suggestive of the way the leaves hang down. It may be well at this point to turn back and compare this tree with the oak shown in Lesson 6. You can see by comparing the two plates, better than I can tell you in words, the difference in character of the strokes used. While the individual strokes do not stand out too prominently, they count enough to give direction to the leaf arrangement and differentiate one type of tree from the other so far as that feature is concerned.

One of the things you must always have in mind, just as in drawing other subjects, is the matter of proper proportioning. The weight of the trunk and limbs of each kind of tree bears a characteristic relationship to the whole tree. I mention this because I often encounter drawings of elm trees where the trunks are too thin in proportion to the rest. Note the apparent swelling in the size of the trunk where it merges into the limbs and also the merging of the trunk into the principal roots at the point of contact with the ground. When you once see these things you will never thereafter be guilty of drawing elms that seem to have smooth cylindrical trunks, resting on the ground like upended pipes and branching abruptly into smaller pipes at the point of division.

Now please do not immediately undertake to prove me wrong by bringing up examples of elm trees which do not conform to the general statements I have made. There are exceptions in nature to almost every rule and I am sure you will be able, if you try, to show me examples of perfectly cylindrical trunks or branches which depart from the usual. Such things may be in existence, but what we are trying to do here is to learn how to draw trees which satisfy the artistic eye and are at the same time natural.

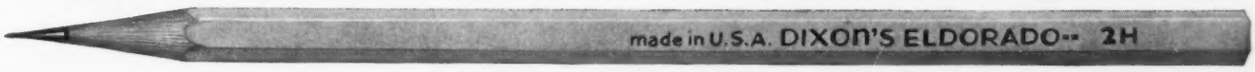
If spreading roots tend to give a firmer base to your tree and lead the lines of your composition more gracefully into the earth, then that is the type of root you should choose to draw.

If you are sketching from nature you do not need to adhere literally to what you see before you. You can take liberties with the placing of branches or you may omit portions of the foliage if by so doing you make a more pleasing composition. If the line of the trunk is too long, you can break its monotony by introducing a broken branch or two as I have done here, placing such interruptions so as to break the long line into parts pleasingly related to each other.

You must be continually aware, no matter what you are drawing, of the relationship between each part of your composition to the whole. It is only in this way that you will succeed in producing satisfactory sketches. You can acquire this skill through continual practice and self criticism, reinforced wherever possible by the criticisms of your more experienced friends or teachers.

***TYPHONITE ELDORADO PENCIL PAGE**

No Invasion



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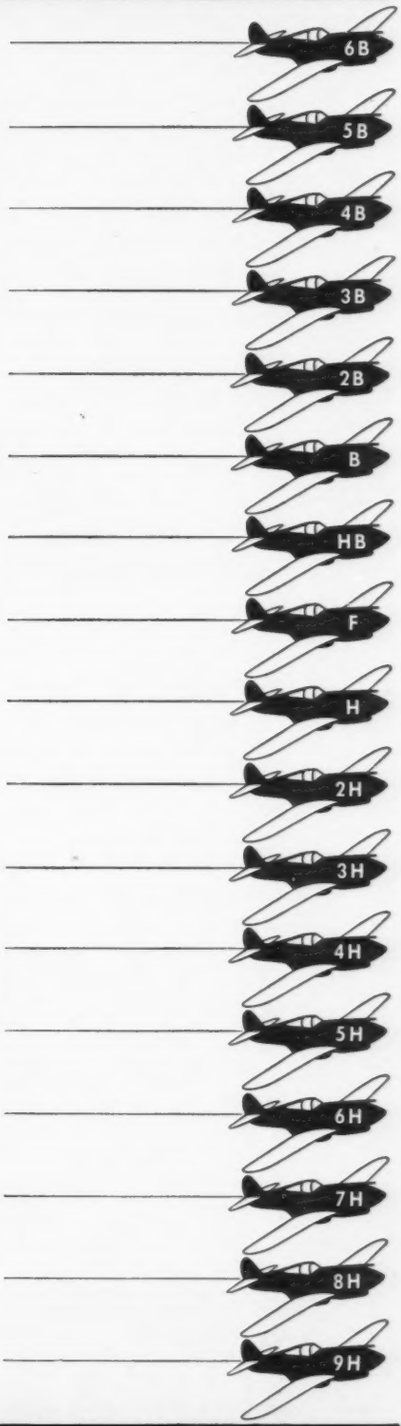

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PERSONAL NOTICES. Announcements concerning the opening of new offices for the practice of architecture, changes in architectural firms, changes of address and items of personal interest will be printed free of charge.

FREE EMPLOYMENT SERVICE. In this department we shall continue to print, free of charge, notices from architects or others requiring designers, draftsmen, specification writers, or superintendents, as well as from those seeking similar positions.

SPECIAL NOTICE TO ARCHITECTS LOCATED OUTSIDE OF THE UNITED STATES: Should you be interested in any building material or equipment manufactured in America, we will gladly procure and send, without charge, any information you may desire.

Notices submitted for publication in these Service Departments must reach us before the twelfth of each month if they are to be inserted in the next issue. Address all communications to 330 West 42nd Street, New York.

THE MART

OFFICE TO SHARE: Established New York City architect desires to share his office with registered architect or professional engineer. Communicate with Robert Kliegman, 1860 Broadway, New York, N. Y., phone CIrcle 6-1860.

Bob Hegeman, West Union, Iowa, would like to obtain a good second-hand airbrush and compressor. Please give complete description, stating condition and price.

A. L. Pfau, Jr., P. O. Box 1252, St. Petersburg, Fla., would like to obtain a copy of Ware's *Modern Perspective*.

Henry C. Havlik, 3711 Eddy Street, Chicago, Ill., has the following copies of PENCIL POINTS for sale: June through December, 1924; 1925 through 1928; all except January, March, April and July, 1929; 1930; all except January and October, 1931; 1932; all except June, July and December, 1933.

Leo Stillman, 332 East 149th Street, New York, N. Y., would like to obtain a copy of *Atlas of the Borough of Manhattan*. Please state price and condition.

Ben John Small, 1835 Grand Concourse, New York, N. Y., would like to obtain several copies of *The Handbook of Architectural Practice*, published by the A.I.A. Please state price and condition of book.

K. R. Haley, 636 Fairmont Street, Greensburg, Pa., has the following copies of PENCIL POINTS for sale: March 1937 through December 1939, in excellent condition. Reasonable offer accepted.

Anthony Finserro & Associates, 104-39 42nd Avenue, Corona, L. I., New York, has for sale all copies of PENCIL POINTS since 1926.

Robert Trivett, Jr., 35 Cambridge Street, East Orange, N. J., would like to purchase the following books: *Architectural Work in Japan* and *Modern Details*, both by Antonin Raymond; and *Modern Architecture in Mexico*, by Esther Born.

B. W. Reeser, P. O. Box 276, Coconut Grove, Florida, will pay 35c per copy for the following issues of PENCIL POINTS: January, March, September, October, December, 1933; January through April 1934. Must be in perfect condition.

(Continued on page 48, Advertising Section)

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(Continued from page 46, Advertising Section)

F. V. Altvater, Duke University, Durham, N. C., has a quantity of heart pine boards averaging 9 to 21 inches in width. These came from a house which was about 200 years old. If any architects are interested, please communicate with Mr. Altvater.

Meyer J. Sturm, 708 Church Street, Evanston, Ill., has for sale the following books: *Dictionary of Architecture and Building*, 3 vols., Russel Sturgis, 1905 MacMillan; *The Spanish House of America*, Rexford Newcomb; *Development and Character of Gothic Architecture*, Chas. H. Moore, 1899; *Domestic Gothic of the Tudor Period*, Sidney E. Castle; *Terra Cotta of the Italian Renaissance*, Arthur F. Adams; *Cyclopedia of Architecture in Italy, Greece and the Levant*, Wm. P. Longfellow, Scribner, 1895, book No. 44 of edition limited to 500 copies; *Hospital Construction and Management*, Mouat and Snell, London, 1883; *The Grammar of Ornament*, Owen Jones, 1868, an original copy of this rare book, cover and plates in perfect condition, sheets loose due to drying of glue, but can be rebound readily; *The Organization, Construction and Management of Hospitals*, a text book, A. J. Ochsner and Meyer J. Sturm, copies rare; *A Parallel of Architect Both Ancient and Modern*, Ronald Freats and John Evelyn, 1707.

PERSONALS

W. K. HARRISON & J. A. FOUILHOUX, ROSARIO CANDELA, and ALBERT MAYER, *Architects*, have formed a joint office for the Fort Greene Houses, Section No. 1, at 45 Rockefeller Plaza, New York, N. Y. Mr. Harry L. C. Gall is office manager.

D. D. MORGAN, *Architect*, has opened an office for the practice of architecture at 109½ Jefferson Street, Burlington, Iowa.

O. J. BRUER, *Architect*, has opened an office at 817 Washington Avenue, Montebello, Calif.

WILLIAM CAIN, *Architect*, has moved his office from 2801 Pond Place to 375 East Fordham Road, New York, N. Y.

J. H. EAGEN, *Architect*, has opened an office for the practice of architecture at 303 Chamber of Commerce Building, McKeesport, Pa.

JOHN SCOTT LAWSON, *Architect*, has moved his office from 12 Via Parigi to larger offices at 19 Via Parigi, Palm Beach, Florida.

HAROLD P. ZOLLER, FRITZ MULLER and JOHN J. McNAMARA, *Architects*, have moved their offices from 240 Madison Avenue to 51 East 42nd Street, New York, N. Y.

McCONNAUGHEY & HEMMERT, *Architects*, have opened an office at 117-2 W. Washington Street, Hartford City, Indiana.

C. R. GASKILL, JR., *Architect*, now has sole interest in the firm of Gaskill-McDaniel. The new firm will be operated under his own name and the address remains the same, 512 Alexander Building, Abilene, Texas.

JAMES BLAUVELT, *Interior Designer*, with offices at 38 East 57th Street, New York, N. Y., has been reappointed lecturer on Interior Design at the New York School of Scientific Housekeeping.

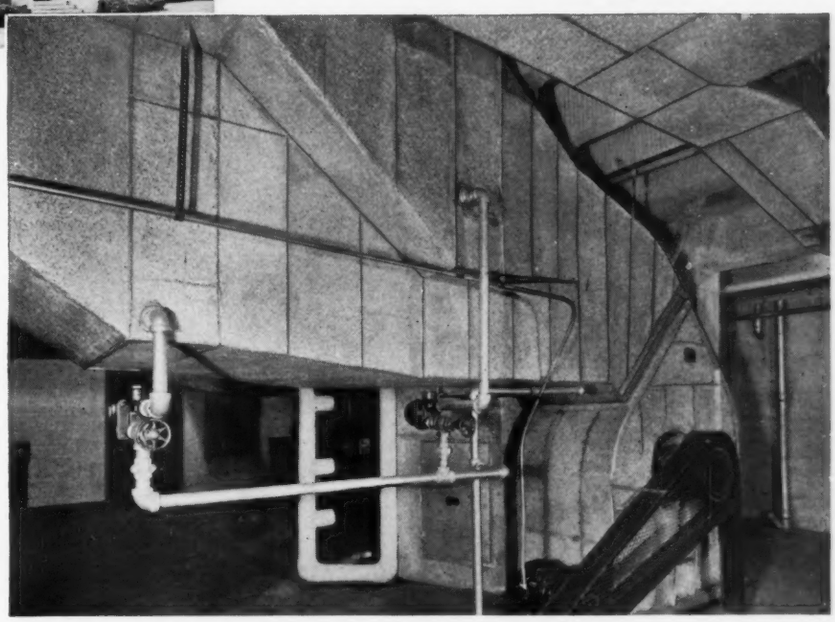
R. HAROLD ZOOK and D. CODER TAYLOR, *Architects*, have become associated and the firm name will be Zook & Taylor, with offices at 140 S. Dearborn St., Chicago, Ill.

VERNON C. SQUIRES, *Architect*, has opened an office in New London, New Hampshire.

HAROLD McNEIL, *Architect*, has opened an office for the practice of architecture and design at 605 Lincoln Road, Miami Beach, Florida.

Cork Insulated for Low-Cost Comfort

Armstrong's Corkboard and Cork Covering guard air conditioning ducts and cold lines in new Republic Insurance Company Building, Dallas



The Carrier-Bock Corp., Dallas, installed the efficient air conditioning equipment in the new Republic Insurance Company's home office building, shown above. Cold air ducts, fan and coil housings are effectively safeguarded against condensation and refrigeration loss by 1" thick Armstrong's Corkboard. Efficient Armstrong's Cork Covering protects the suction lines to the compressor.

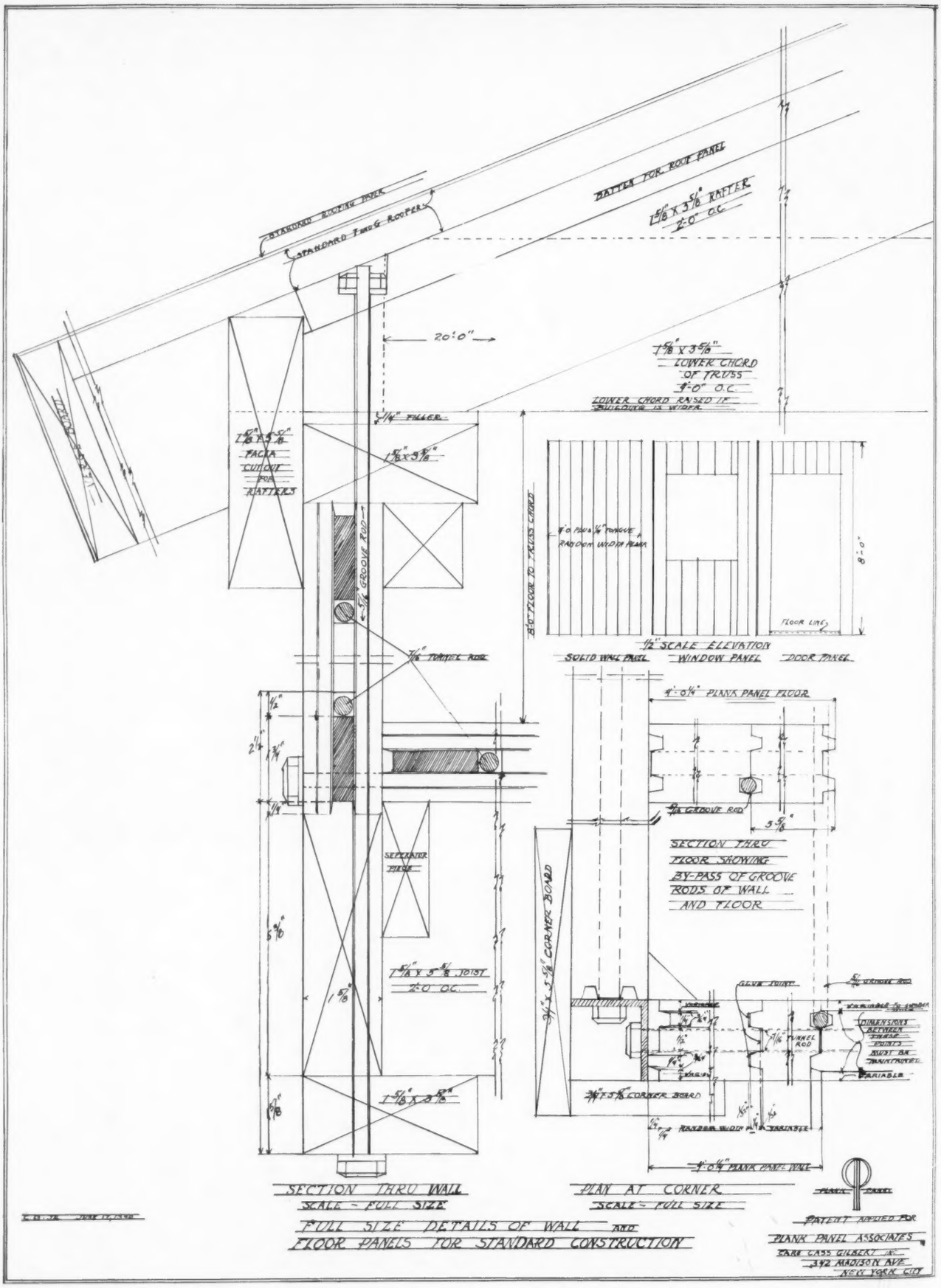
ECONOMY in operation and maintenance, and close control of room temperatures were two reasons why architects Dewitt and Washburn, Dallas, specified efficient CORK insulation for the air conditioning system in the Republic Insurance Company's new home office building.

Leading architects and engineers know they can count on lasting efficiency when Armstrong's Cork Insulation is on the job. This pure cork material effectively bars heat's passage. It prevents warm, moisture-laden air from coming in direct contact with the cold air ducts and cold lines. Thus, there is no condensation and drip, and losses of refrigeration are reduced to a minimum. Furthermore, corkboard-insulated ducts make it possible to deliver cold air any practical distance *at the temperature desired.* This means closer control of room temperatures—increased year-round comfort.

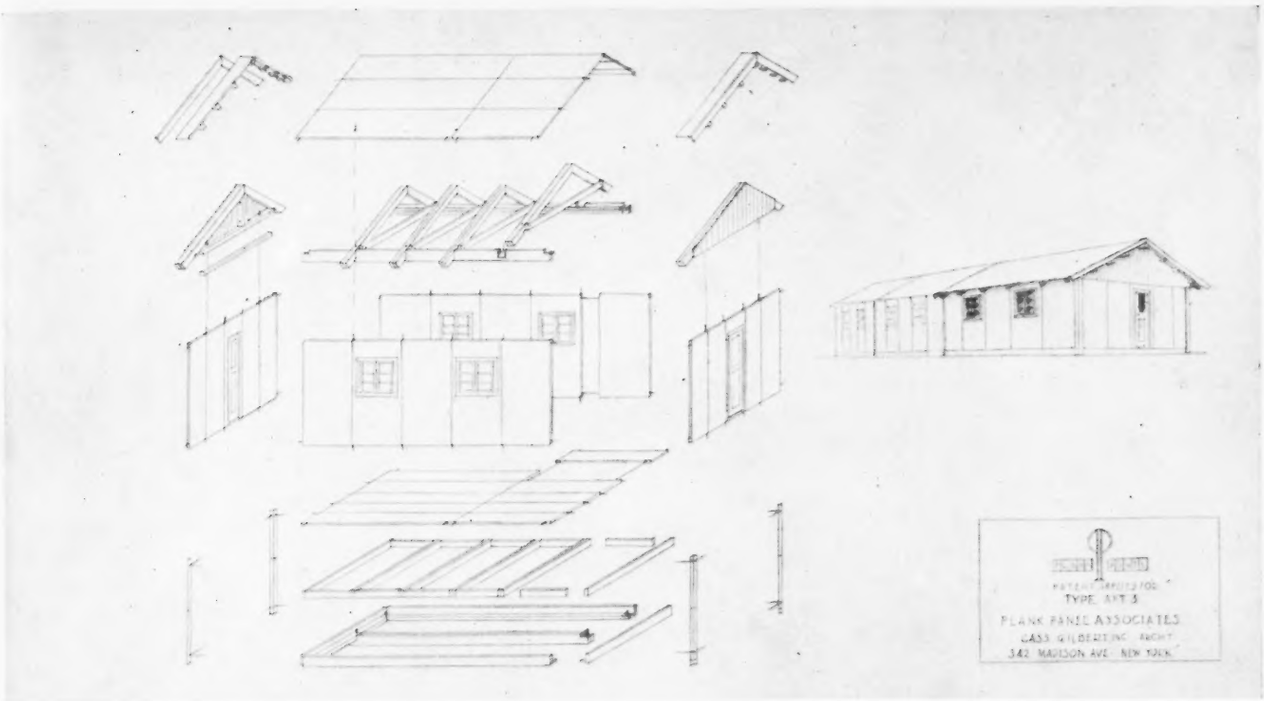
Armstrong's Cork Insulation is extremely durable—highly resistant to moisture and other common causes of deterioration. When properly installed, it keeps its efficiency for years, even under severe service conditions. Armstrong's Corkboard is made in convenient board sizes and thicknesses for duct, wall, and roof insulation. Armstrong's Cork Covering is available in shapes to fit all standard sizes of pipes and fittings and in thicknesses to meet any temperature need. For complete facts about this efficient, money-saving insulation, write today to Armstrong Cork Co., Building Materials Division, 922 Concord St., Lancaster, Pa.

Armstrong's CORK INSULATION

CORKBOARD *for Cold Rooms and Equipment . . .* **CORK COVERING** *for Cold Lines*



This drawing by Cass Gilbert, Jr., illustrates the system of Plank Panel construction—based upon pre-fabricated plank panels assembled with steel tie-rods—as developed in the office of Cass Gilbert, Inc., Architects, of New York. It is referred to in the accompanying article as an Assembly Diagram, and includes essential information about this construction



PLANK PANEL CONSTRUCTION

A system of construction that is based upon pre-fabricated plank panels assembled with steel tie-rods has been developed in the office of *Cass Gilbert, Inc.*, Architects, of New York. In its basic form, it is designed to provide quickly erected, substantial, weatherproof shelter, suitable for camps, barracks and the like, or for houses that can be lived in comfortably until they are converted into homes having the outward appearance and completeness of those constructed in the familiar manner. The panels form smooth surfaces inside and outside that give a finished appearance and they may be oiled or painted.

If a house suitable for occupancy by a family throughout the year is desired, the plank panel construction can be employed in place of the studding and sheathing of the usual wooden frame. If this construction is used for the shell of the house, siding or other exterior covering may be added, the interior may be plastered or otherwise finished, and the roof constructed in accordance with customary practice.

When used in this way, the plank panel construction replaces the current type of framing, just as the latter replaced the earlier framing of heavy timbers, and with the same object in view, namely, to keep pace with the manufacturing facilities of a new day.

A demonstration unit 20 feet square was built in the Borough of Brooklyn, New York, some months ago, in which the plank panel construction was used without additional wall covering either inside or outside. In this case, the panels were neither oiled nor painted and it is stated that this test structure proved the practical value of this system of construction under actual conditions of erection and exposure to the weather.

This sketch of a Cape Cod Colonial Type house as designed by Cass Gilbert, Inc., shows this type of construction lends itself to any architectural style

Cass Gilbert, Jr., has just had this unit removed to the grounds of his house, at Greenwich, Connecticut, to provide a place in which the younger members of the family can entertain their friends.

It required only six hours for four men to take down the building in Brooklyn, load it on a truck and clear up the site. A few hours later, it arrived at his place in Greenwich, where it was unloaded in forty-five minutes.

A foundation of brick piers was

provided at the new site and the unit was reassembled. It is stated, as a result of timing this operation, that such a unit can be assembled completely, including the roof of pre-fabricated panels, by a carpenter and three men in an eight-hour working day, plus one day's work by the carpenter.

This plank panel system of construction is shown by detail drawings and assembly diagrams for a 20 x 20-foot house that are reproduced here. Application for a patent on this system has been filed in the U. S. Patent Office by G. G. Wheat.

By reference to these drawings, it will be seen that the walls are formed of mill-fabricated panels 8 feet long by 4 feet wide, set with the longer dimension vertical. These panels are composed of random width, 2-inch planks dressed four sides, with double tongued and grooved edges, which are glued together in hydraulic jigs. A spline is mortised into each end of the panel for greater strength and rigidity. Back of the splines, spaces are left to serve as a tunnel through which to run horizontal tie-rods. Grooves are provided in the edges of the panels, to receive the vertical tie-rods, which are placed in the joints.

These panels may be of greater length than eight feet, if desired. For economy it is advisable to use stock lumber lengths. In addition to the solid wall panels, door and window panels, pre-fabricated with openings, are employed. The door panels are provided with a bottom rail of oak the ends of which are mortised into the panel. This rail has a groove to receive the horizontal tie-rod and may be covered by a metal weather-strip sill. Partitions may be plank panels.

Panels similar to the solid wall panels are employed for the floor. They have tunnels back of the splines and grooves in their edges through which tie-rods are run at right angles and extended through the sills, where their threaded ends are fitted with nuts bearing upon washers. The floor panels rest upon joists which are in turn supported at the sill and by a girder beam. Provision is made, by means of a detail shown here, to permit the tie-rods in the floor to by-pass the vertical tie-rods in the sills.

In assembling the walls, the wall panels, together with any door or window panels that may be required, are joined together to form a wall unit with horizontal tie-rods extending through the top and bottom and vertical tie-rods in the joints between the panels, extending through the sill and plate assembly and fitted with nuts bearing upon washers.

In each corner of the building, a steel angle is placed. The threaded ends of the horizontal tie-rods pass through holes in these angles and are fitted with nuts. This applies to walls up to 24 feet in length, which may be formed in multiples of the 4-foot width of the panels. If a wall of greater length is required, a steel channel can be substituted for the angle and the wall extended by adding panels, the channel providing a means of securing the tie-rods, or sleeve nuts may be used to join the tie-rods as the case may indicate. Additions may be connected to the building in this manner.

From the foregoing, it is seen that when the elements are assembled and the nuts on the tie-rods are tightened up, the unit must be remarkably strong. It is stated that such a unit could be overturned without collapsing, could bridge an earthquake crevice and, if not anchored to the foundation, could float on the waters of a flood and be of service after being salvaged, also that if secured to the foundation, it would offer unusual resistance to storms.

It is clear that such solid panel walls would have considerabe insulating value. They would not take fire as readily as lighter material and would not cause any flue action favorable to the spread of fire, as in the case of walls containing an air space. It is to be noted that the panels serve as the supporting members as well as the enclosing members of the structure and that this construction employs the materials in such a way as to utilize their strength.

When not assembled the elements can be packed solidly in small compass, for transportation or storage; they are small enough and light enough to be handled with ease and speed. All of the operations required are simple enough to be performed with labor available anywhere. This looks like a workmanlike approach to the problem of pre-fabricated construction.

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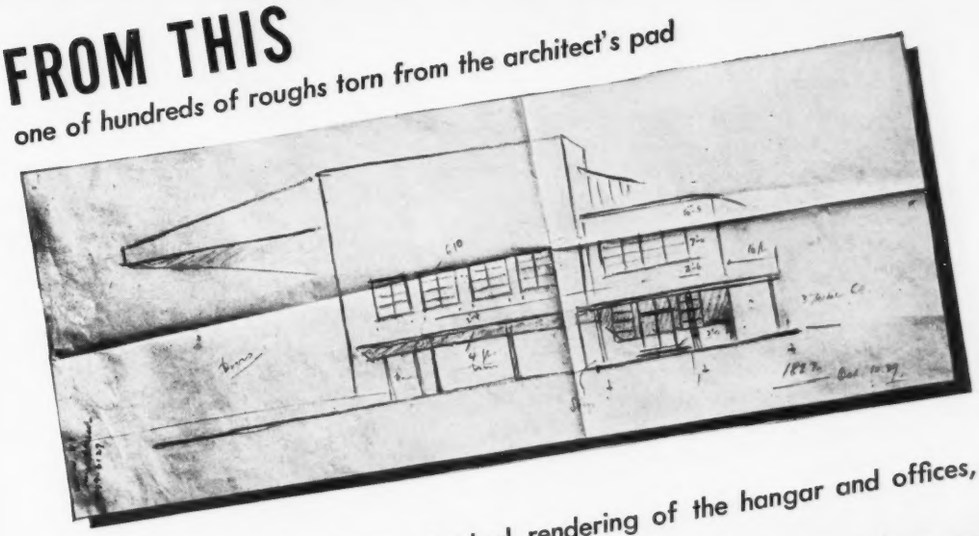
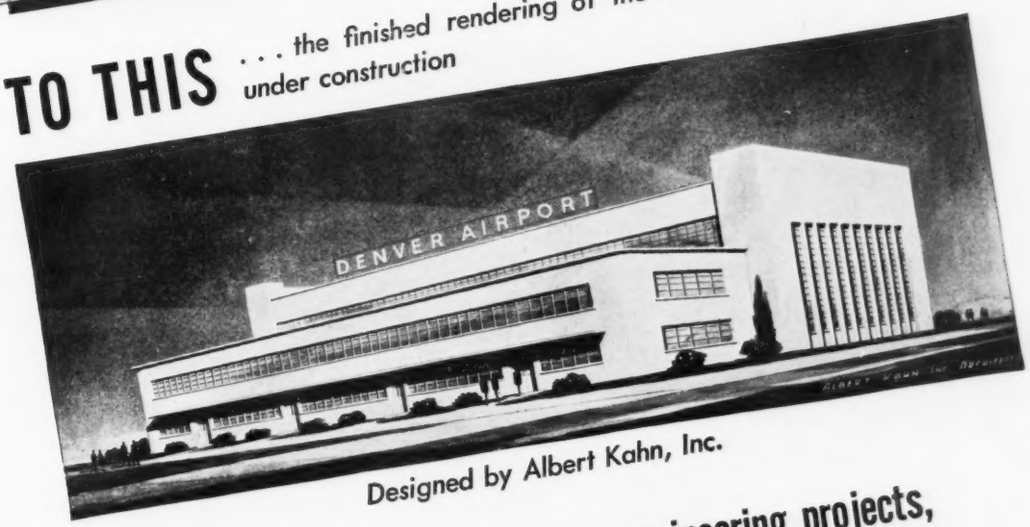


TO THIS . . . the finished rendering of the hangar and offices, now under construction



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OLD VERMONT HOUSES, *by Herbert Wheaton Congdon ($3.00, 190 pages 7" x 10", illustrated — Stephen Daye Press, Brattleboro).*

The theme of this cross-section of Vermont architecture and customs, which resulted from the author's investigations as architect-photographer for the Old Buildings Project of the Robert Hull Fleming Museum, at the University of Vermont, is expressed by the sub-title of the book, "The Architecture of a Resourceful People." Not until he was at work on his survey, and penetrating half-forgotten sections of the State, did Congdon realize that he was exploring a neglected phase of Vermont life; then as his curiosity drew him on, he determined to write about it.

Thus we have a book written by an architect, illustrated with a collection of 125 of his photographs, and filled with a wealth of information of just the sort that appeals to his profession. Intimate studies of homes, as well as a record of the Vermont monuments, give a rich picture. For reference, a thorough index is included.

BUILDING CODE CHARTS, *by Ernest Irving Freese ($1.00, 10 charts—Ernest Irving Freese, 6247 Pine Crest Drive, Los Angeles, Calif.).*

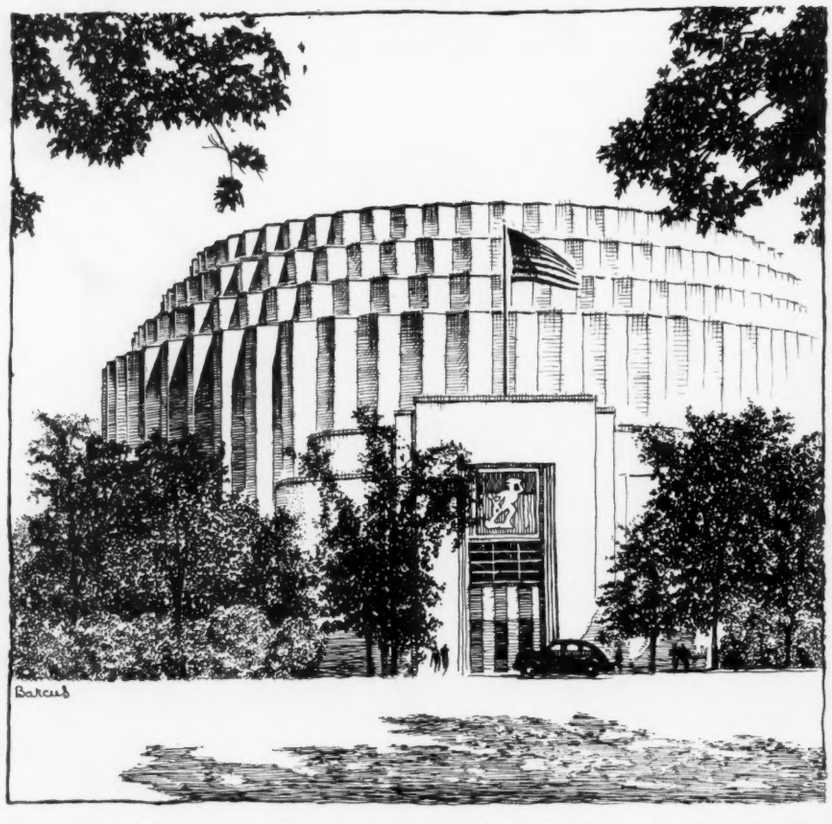
Ten charts that do away with all computations in determining the Maximum Allowable Spans of Douglas fir floor joists and rafters varying in size, spacing and loading, to meet the requirements of the Uniform Building Code, State Housing Act of California and the building ordinances of the city and county of Los Angeles.

Charts are 8½" x 11", printed on one side only, of heavy-service buff-colored stock, with all corners rounded, and with three-ring loose-leaf punching.

STANDARD PLUMBING DETAILS, *by Louis J. Day, Architect and Sanitary Engineer ($6.00, 119 plates 9¼" x 11½"—John Wiley & Sons, New York).*

According to the publishers: "In this book you will have available for quick reference the many facts and details concerning plumbing obtainable formerly only after exhaustive research. Every phase of plumbing is covered graphically, with no text description. The drawing tells the complete story —the installation, the connections, and how they fit together. The information presented is sound, reliable, and covers the best modern practice. Excepting the diagrams, all drawings are drawn to scale and are reproduced at the actual size drawn."

The lack of text information is probably not a serious omission to the sanitary engineer, but an architect may feel the need for explanatory matter. We hope that the next edition of this book may utilize some text to establish some of the principles involved in the hydraulics of plumbing, so that the very excellent plates will be more intelligible. D.G.



These pen drawings by Frank Barcus, staff architect for the Detroit City Planning Commission, are from his recently-published book "All Around Detroit—Leaves from an Artist's Notebook." The drawings depict the Detroit skyline (above) and the Ford rotunda showroom designed by Albert Kahn. The book published by Mr. Barcus consists of notes—artistic and historical—on points of interest about the city and is illustrated with eighty drawings and two maps. He is now at work on a book about the Great Lakes

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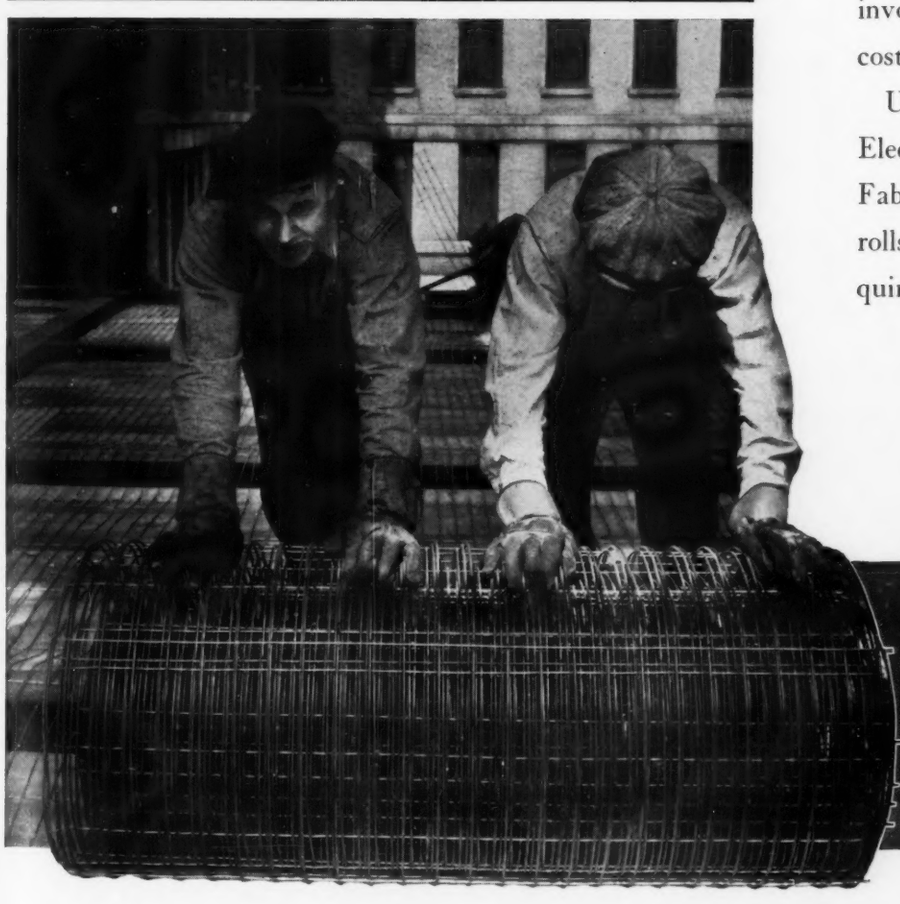

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COMPETITION ANNOUNCEMENTS AND PRIZES

The Section of Fine Arts, Public Buildings Administration, Federal Works Agency, invites competition for 200 water colors for the Carville, Louisiana, Marine Hospital — for which a total of $6,000 will be paid by the Government. This Hospital is the only one in the United States which houses in isolation approximately 400 leprosy victims. There are 16 buildings for patients and the water colors will decorate 32 sitting rooms in these buildings and 4 vocational rooms.

Through the generosity of the Carnegie Corporation of New York the jury will select an additional 100 water colors for which a total of $3,000 will be paid for further decoration of the Carville Marine Hospital and also several other Marine Hospitals in the United States. The advisory jury to the Section of Fine Arts which will select the 300 water colors will include: *Eliot O'Hara* of Washington, D. C.; *Charles Burchfield*, Gardenville, New York; *Buk Ulreich*, New York City; and *John Marin*, Cliffside, New Jersey.

The term water color is used in the liberal sense and is intended to include paintings in water color, temperas, gouache or a combination of these media, wash drawings and pastels. All must be executed on a high grade water color paper or board, submitted matted, signed with the artist's name and not more than five from one artist. The mailing or delivery address is the office of the Section of Fine Arts, 7th and D Streets, S.W., Washington, D. C., and the deadline is November 15, 1940.

PLYM FELLOWSHIPS

The Twenty-eighth Competition for the $1,200 *Francis J. Plym Fellowship in Architecture* is announced by the committee in charge, under authority of the Board of Trustees of the University of Illinois. It is open to all graduates of the Illinois Department of Architecture and will be held in two parts, the preliminary during January and the final probably during February and March. Although the Plym Fellowship is for European travel, the committee reserves the right to determine when conditions permit foreign travel and study.

The Eighteenth Competition for the *Plym Foreign Fellowship in Architectural Engineering* also is announced by the committee in charge. This is open to graduates of the Department of Architecture, in Architectural Engineering, at the University of Illinois and the value also is $1,200.

Professor L. H. Provine, Head of the Department of Architecture, may be addressed at the University of Illinois, Urbana, for further information about either fellowship.

SCHOOL OF DESIGN

The School of Design in Chicago has awarded scholarships for the current academic year to *Alfonso Carrara*, Chicago; *Milton Halberstadt*, Cambridge, Massachusetts, and *Homer Page*, Oakland, California. L. Moholy-Nagy, Director, also announces that the number of applicants for scholarships was so great

(Continued on page 69)

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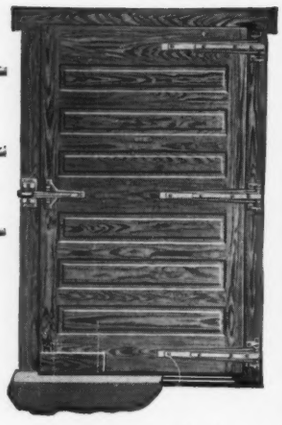

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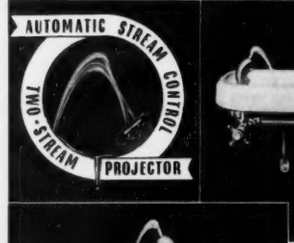

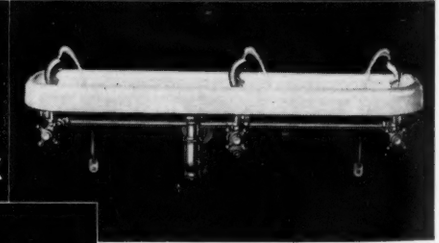

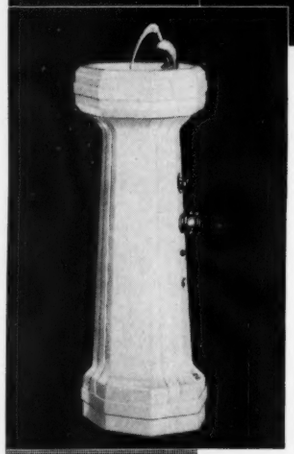

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(Continued from page 68)

and the quality of their work so high in many cases that the School offered two additional part-scholarships to *Louis Sigalos*, Chicago; and *Richard Schofield*, of Bridgeport, Illinois. The winners will be given a year's study in the school's foundation courses, which cover an introduction to the fields of drawing and color, sculpture, photography, weaving and basic work in wood and metal with hand tools and machines, together with science courses and lectures on contemporary art and architecture trends.

BRUNNER AWARD

The committee in charge of the *Arnold W. Brunner Scholarship* has announced that applications and supporting evidence will be accepted until November 15 from applicants among the membership of the Architectural League of New York. Approximately $2,000 is available for one or more scholarships and announcement of the awards will be made December 15.

RECEIVES AWARD

An award for the best design and craftsmanship of all the exhibitors at the summer exhibition of the Society of Designer-Craftsmen was presented September 26, at a meeting of the Society at 64 East 55th Street, New York, N. Y. The recipient of the award—a fellowship in the Society—was *Lillian Holm*, who came from Bloomfield Hills, Michigan, to receive the honor in person. Mrs. Holm is a teacher of weaving at the Kingswood School of the Cranbrook Foundation of Art near Detroit. She has been displaying her work at the Society's summer show at 64 East 55th St.

* * * * *

NEW HOME BUILDING INFORMATION CENTER

Walter Sanders, New York architect, is preparing plans for the alteration of the old Rockefeller Center headquarters of PEDAC to serve as the new Rockefeller Home Center. PEDAC, founded eight years ago as a display space for decorating materials, will give way to a series of showrooms for home building products. The exhibits as planned by Mr. Sanders, the Director of Design of the Center, will contain novel features. Models and full-sized wall assemblies will be used to demonstrate proper framing, types of exterior treatment of walls and roofs, heating systems, plumbing equipment, and lighting.

By veering in a northeasterly direction after visiting Radio City Music Hall, our suburban and country subscribers may reach these showrooms in the International Building in that showplace of Baghdad-on-the-Subway—Rockefeller Center.

CONFERENCE SET

A conference, *The Expansion of Industrial Communities, with Respect to General Planning and Housing*, is to be held at the University of Michigan, in Ann Arbor, November 29 and 30, under auspices of the College of Architecture and Design, current problems arising from the present industrial expansion program are to be presented by experts in the fields concerned, such as Architecture and the Building Industry, Public Officials and Social Agencies, and Real Estate groups. There also will be opportunity for discussion.

Those interested in attending the conference are urged to write to *Dean Wells Bennett*, 207 Architectural Building, Ann Arbor, Michigan, for detailed information.

HOUSING STUDY

Weekly forums for the discussion of problems relating to housing are being conducted in New York by the "Housing Study Group," now functioning for the fourth year. The group was organized under the leadership of *Clarence S. Stein* and *Henry S. Churchhill* and it is headed this year by *Jack A. Wahl*, who was Head Draftsman for the Queensbridge Houses and now fills a similar capacity for the Kingsborough Houses, another USHA project. It has been suggested that architectural draftsmen in other large cities might form similar groups to broaden their knowledge of housing and Mr. Wahl offers to answer questions addressed to him at 5 East 57th Street, N. Y.

Field trips to visit low-rent, limited dividend, and other housing projects have been arranged in addition to the forum discussions. In several cases the architect of the project visited has served as guide to the group. Among the forum speakers there have been *Clarence S. Stein, Henry S. Churchhill, T. F. Hamlin, F. L. Ackerman, Albert Mayer* and *Henry Wright, Jr.*

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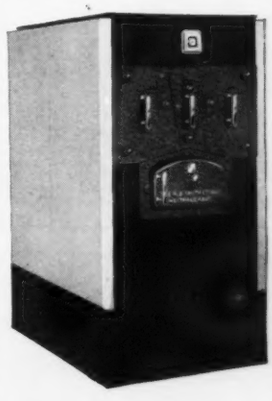

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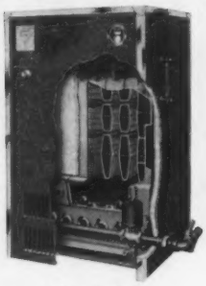
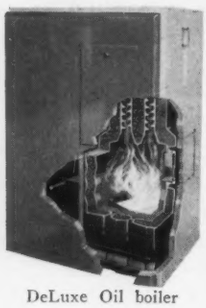


Gas boiler



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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912

Of PENCIL POINTS published monthly at Stamford, Conn., for October 1, 1940.

State of New York } ss.
County of New York }

Before me, a Notary Public in and for the State and County aforesaid, personally appeared Philip H. Hubbard, who, having been duly sworn according to law, deposes and says that he is the Publishing Director of the Corporation publishing PENCIL POINTS and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, associate editor, and business manager are:

Publisher, Reinhold Publishing Corporation, 330 W. 42nd St., New York City.

Editor, Kenneth Reid, 330 W. 42nd St., New York City.

Managing Editor, Charles Magruder, 330 W. 42nd St., New York City.

Publishing Director, Philip H. Hubbard, 330 W. 42nd St., New York City.

2. That the owner is: Reinhold Publishing Corporation, 330 W. 42nd St., New York City; Ralph Reinhold, 330 W. 42nd St., New York City, and L. N. Thompson, 330 W. 42nd St., New York City, stockholders.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner, and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

PHILIP H. HUBBARD,
Publishing Director

Sworn to and subscribed before me this 1st day of October, 1940.

CURVILLE C. ROBINSON,
Notary Public

(My commission expires March 30, 1942.)

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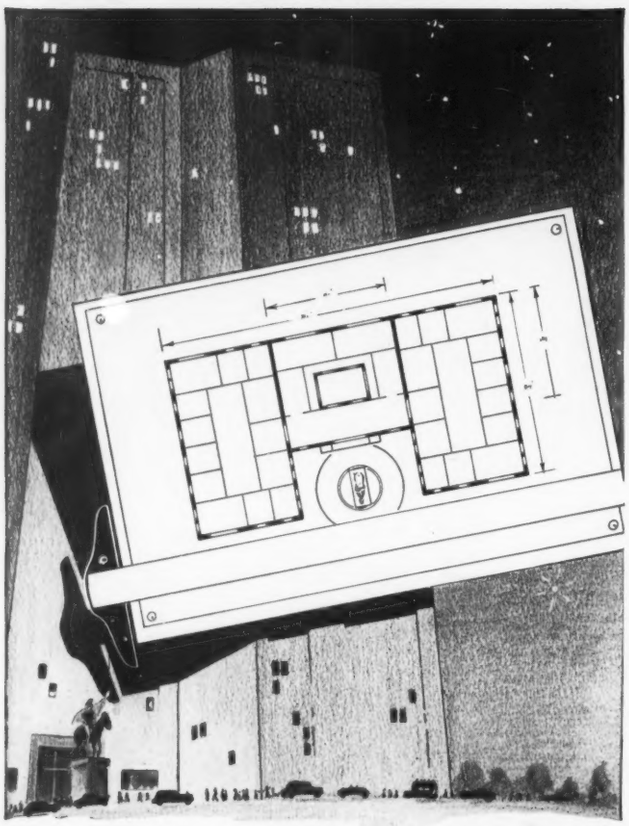

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The dispensing roll container is a protection, a convenience and an identification. It keeps the cloth clean — handy brackets attach to desk or table.

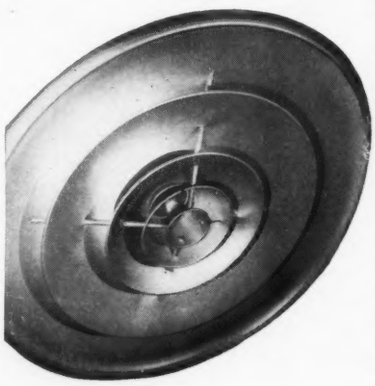
NEW PRODUCTS

IMPROVED TYPE C ANEMOSTAT

An improved and modified design has been developed by the Anemostat Corporation of America, New York, to take the place of the former type C Anemostat. This modified type C Anemostat functions in the same manner as the preceding type C.

The following improvements have been made:

(1) The diameter of the outer cone has been reduced from a dimension approximately three times the neck diameter, to a dimension approximately two times the neck diameter. Because of the smaller outer dimensions, the ceiling opening to receive the Anemostat will be correspondingly smaller. This will permit the installation of the Anemostat between beams with a minimum of structural framing, particularly where wood framing is employed.



(2) The outer cone is finished with a moulded edge. This edge will prevent smudging and streaking of the ceiling under all but the most unfavorable conditions.

(3) The construction of the improved type C is sturdier. The diameter of the outer cone has been reduced but the gauge of the metal remains the same and the outer cone is furthermore strengthened because of the moulded edge. The diameter of the fixing stays has been increased. The appearance of the Anemostat has been very greatly improved.

NEW ASPHALT ROOFING ENTERS FIELD UNDER TRADE NAME OF ASQU

Construction Materials Patents, Inc., Cincinnati, O., announces an important development in asphalt roofing and the issuance of three U. S. Patents: one covering the new product, one the process of manufacture, and one the equipment used in the process.

The new roofing is being identified by the name of Asqu. It is claimed that the new process makes possible the positive control of the roofing quality and uniformity hour by hour in its manufacture.

The major cause of the lack of uniformity in the wearing quality of asphalt shingles as finally determined by years of intensive research, was, it is stated, incomplete asphalt saturation of the felt base of the shingles and roll roofings. This shortcoming is said to be overcome by the Asqu process which saturates the felt with asphalt to no less than 98½% of its total capacity, as against a minimum standard of 85% saturation required by the Underwriters' Laboratories.

Among the advantages claimed for Asqu roofings are the practical elimination of severe blistering, sliding, and the loss of the protective mineral granule surface of the shingles.

The Philip Carey Co., Lockland, Cincinnati, O., is the first licensee to manufacture asphalt roofing under Asqu patents.

(Continued on page 76, Advertising Section)

Here are some things we haven't told you about FREON* *refrigerants*

"Freon" refrigerants are safe. Almost everyone interested in air conditioning knows it. They meet all the specifications for safety of life and property set by the Underwriters' laboratories and other responsible organizations.

But safety is far from being the only advantage of "Freon" refrigerants! Consider, for example, the flexibility of equipment using "Freon" refrigerants. It is light weight and compact. It requires little headroom. Because of the safety of the refrigerant and the quietness of operation, it can be placed right in the room to be cooled, or close to the material to receive the refrigeration effect. These features make possible the most efficient use of building space, and frequently reduce the amounts of ducts needed.

The initial cost of equipment is low. Systems using "Freon" refrigerants operate at low pressures, permitting lighter castings. No automatic purging apparatus is needed for decomposed gases, because "Freon" refrigerants will withstand repeated evaporations, compressions and condensations without disassociation.

Operating costs are also low. "Freon" refrigerants have no corrosive action on any of the metals used in refrigerating machinery. This permits selection of materials which provide maximum heat transfer and efficiency. "Freon" refrigerants are miscible with mineral lubricating oil, assuring positive lubrication and avoiding oil logging of condensers, receivers and evaporators.

So many and so obvious are the advantages of "Freon" refrigerants that they have come to be used almost exclusively for air conditioning, and in a majority of new commercial refrigeration units. They are as adaptable to small fractional horsepower units as to commercial apparatus of hundreds of tons capacity. Some of the largest refrigerating systems in the world use "Freon" refrigerants.

Why not get a fresh estimate of air conditioning costs with the modern 1940 equipment employing "Freon" refrigerants. You may be pleasantly surprised to find how low they are.

KINETIC

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"Freon" is Kinetic's registered trade-mark for its fluorine refrigerants.

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These contract forms have stood the test of time. They have reduced to a minimum lawsuits and misunderstandings.

They make for good will between the Architect, the Owner, and the Contractor.

They eliminate worry. They reduce office overhead. They safeguard the position of the Architect. They expedite the business of building.

Is there any Architect who has not adopted these forms as his own?

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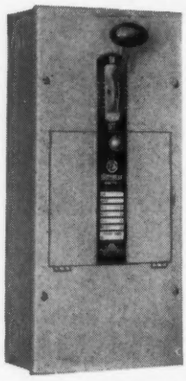
(Continued from page 74, Advertising Section)

NEW SAFETY SWITCH

The Frank Adam Electric Co., St. Louis, Mo., announces the introduction of a front-operated enclosed safety switch, known as the F-A Shutlbrak switch, which is said to embody entirely new ideas in both design and construction. For either surface or flush mounting, it is a heavy duty industrial switch with quick make and quick break connections held under compression. The line and load connections are enclosed in the completely insulated shuttle, which contains the movable contacts—the springs, and the main contact roller. There is an arc-resisting barrier between the line and load contacts at all times.



The new switch is equipped with Kamklamp fuse-holders for either ferrule or knife-blade types of fuse terminals. It is available either with or without an interlocking arrangement between the operating switch lever and the door of the fuse compartment. Capacities at present: 30 to 200 amp. inclusive for 250 volt AC or DC, and 575 volt AC, in 2, 3 or 4 poles, with higher capacities in preparation.

NEW FIRE RETARDANT INSULATING BOARD LATH

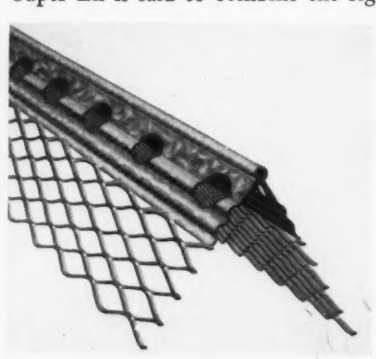
A fire-retardant wall can now be built, employing as a foundation a fiber board which insulates against heat and sound with high efficiency. This is made possible with the introduction by Fir-Tex, Portland, Ore., of Fir-Tex fire retardant insulating board, said to be the only ½-inch insulating board with one-hour fire rating on wall construction, using wood studding and plaster. This lath also protects metal framework against warping caused by heat.

The new board consists of felted wood fibers mixed with the proper proportion of microscopic flakes of expanded vermiculite. These flakes are said to form thousands of fire-walls in each cubic inch of the lath.

NEW MILCOR CORNER BEAD

The most significant advance in corner bead design since the invention of the original expansion wing is claimed for the new Super-Ex Corner Bead, a recent development of the Milcor Steel Co., Milwaukee, Wis.

Through the use of a half-solid, half-expanded wing, Super-Ex is said to combine the rigidity of a solid-wing corner bead with the plaster-bonding qualities of an expanded metal wing. The central section of the unit is a backbone of solid steel, perforated and double-fluted for extra strength. The remainder of the wing is of expanded mesh, insuring a tight plaster bond and a crack-proof building corner.



The solid wings of Super-Ex extend far enough on either side of the nose of the bead to reach the base wall at all points, thus eliminating all irregularities due

(Continued on page 78, Advertising Section)

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MODERN commercial floor areas demand a flooring that is attractive but not distracting; long-wearing; comparatively low in first cost, and easy to clean and keep clean. Tile-Tex flooring meets all of these exacting requirements • Sixty colors in fifteen sizes insure attractive design and pattern. The sturdy asbestos-asphalt composition of Tile-Tex is noted for its rugged wear-resistance. Tile-Tex is priced lower than many temporary floor coverings — and its smooth, sanitary surface makes it simple and economical to keep bright and clean.

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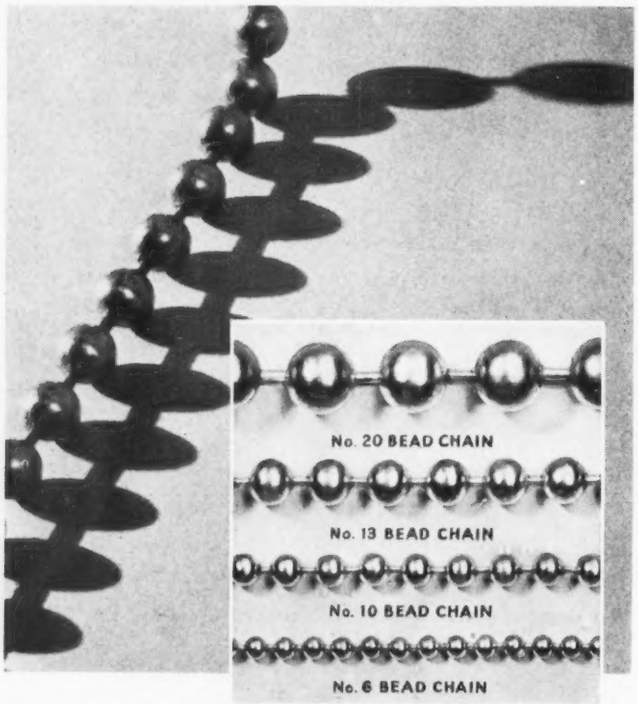
The TILE-TEX Company

101 Park Avenue, New York City **Chicago Heights, Illinois**

Our Constant Objective

is to furnish the architect with an honest, steadily improved product that will enable him to design architecturally correct floors which can be installed and maintained properly at minimum cost.

BEAD CHAIN*



You find BEAD CHAIN* constantly on many products of architectural use, but do you realize the wide diversification it has for decoration and practical efficiency? For example, BEAD CHAIN* in the proper size and desired metal finish, is widely used with decorative results for skylight and transom controls, heat regulators, Venetian Blind pulls and with plumbing and electrical fixtures.

SIZES AND APPROXIMATE STRENGTH

Size No.	Diam. of bead, in.	Approx. tensile strength, lbs.	
		Brass or nickel silver	Monel
3	.093	15-20	25
6	.125	25-30	45
10	.187	45-50	75
13	.250	85-100	150
20	.375	175-200	...

• Architects, designers and engineers are invited to send for samples, catalog page and cooperation on any problem where the use of BEAD CHAIN* might be effective.

BEAD CHAIN
ESTABLISHED 1914

Trade Mark Reg. U.S. Pat. Off.

THE BEAD CHAIN MANUFACTURING CO.

*Reg. U. S. Pat. Off. **54 MT. GROVE ST., BRIDGEPORT, CONN.**

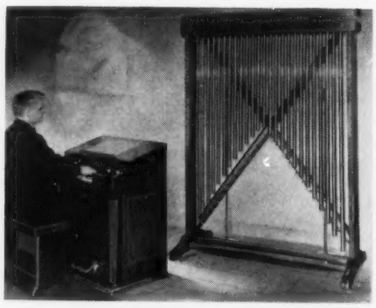
(Continued from page 76 Advertising Section)

to rough corners. In case of an accidental blow to the corner, major shocks are transmitted directly to the solid wall, and resulting minor shocks are diffused by the expanded metal reinforcing the plaster.

Super-Ex is precision stamped and expanded from one-piece 24 and 26 gauge Titecoat galvanized steel.

SUNCO MICRO-TUNED CARILLON

The Sundt Engineering Co., Chicago, Ill., is producing a new micro-tuned carillon, which is tuned to an average accuracy of 1/5000 of 1% to tuning fork standard accurate to 1 part in 10,000. Such close tuning, is said to eliminate the out-of-tune sound so frequently heard in outdoor carillons when two or more notes are played together; and harmonies of unusual beauty of tone are created.



Special electric pickups on each chime pick up the deep sub-octave bell notes which are amplified separately. In this way the range is extended a full octave. Microphones pick up the usual chime note. The two are blended by foot pedals to obtain unusual distance effects, and variations. The deepest note equals the tone produced by a bell of 12,500 pounds; the total weight of the Sunco carillon is only six hundred pounds.

The Sunco instrument is an amplified, 25-chime, 37-note, keyboard operated, tubular chime-carillon. It is played like a piano. Large outdoor speakers are mounted in the church belfry. The same amplifying system that is used for the carillon can also be used for indoor speakers, hard-of-hearing aids, and a variety of uses ranging from the pulpit to the basement. A phonograph turntable in the console is provided for playing special chime records recorded from the carillon.

ALFOL INSULATION BLANKET

The Alfol Insulation Co., Inc., 155 E. 44th St., New York, announces a new development in reflective insulation blanket that is supplied in a rolled collapsed form. Each roll contains 250 sq. ft. of net insulation, is 7″ in diameter and weighs 17 pounds.

The application of this material is extremely simple and perfectly safe because the blanket in its collapsed form will not extend across a stud, beam or rafter space until a slight pull is exerted on the edges. With this pull the blanket spreads 4″ wider across its width, and not only will it reach across the two wood members forming a panel, but it has ample allowance for job variances in the spacing of wood members.

The material is supplied in single and double layer form and stock sizes are 15″, 19″ and 23″ net widths. These widths fit 16″, 20″ and 24″ on center spacings.

Both the single and double layer materials are backed up with a double vapor barrier paper consisting of a sandwich sheet of two 25-lb. kraft papers with 25-lb. asphalt binder, and a covering sheet of 40-lb. kraft paper. When nailed across the face of wood members, the single or multiple sheets of aluminum foil are in complete and free suspension, bounded by air spaces and the selvage lap of one blanket over the other gives positive assurance against edge bulges or leakage.

(Continued on page 81, Advertising Section)

(Continued from page 78, Advertising Section)

EXCLUSIVE FEATURE FOR CERTAIN-TEED GYPSUM WALLBOARD

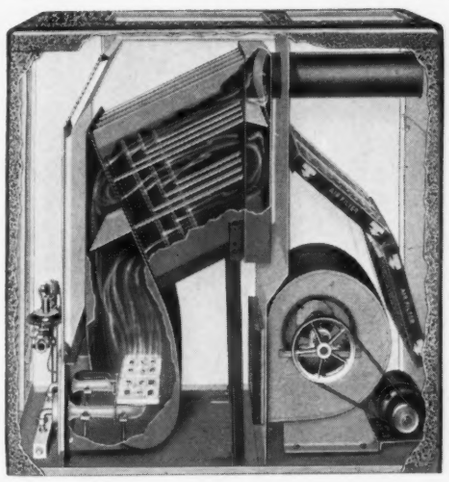
The Certain-teed Products Corp., New York, announces the production of a gypsum wallboard under its trade name, Bestwall, made with all four edges beveled. This makes possible concealed side joints as well as concealed end joints.

When two pieces of the Bestwall wallboard are placed together the two bevels form a depression in which the reinforcing tape is applied. The tape is then covered with joint finisher, forming a smooth, strong joint.

One of the chief advantages of the improvement, it is stated, is the elimination of much of the "feathering-out" that was necessary in finishing the ends of the applied boards, thereby saving time and labor. Furthermore, by permitting horizontal application, the four-bevel product furnishes additional bracing to the structure, and provides greater strength to joints at all openings and corners.

GAS-FIRED WINTER AIR CONDITIONER

The Dowagiac Steel Furnace Co., Dowagiac, Mich., announces a new gas-fired winter air conditioner, the Dowagiac Arrow, in a neat, compact unit which is erected on a base pan and shipped completely assembled. It is unique in design in that the combustion chamber is of the tear drop or airplane wing design to minimize turbulence against its wiping surfaces. Four flues lead back to a radiator and slotted heat exchanger giving the burning gases about 14′ of fire travel and giving the unit generous heating surface.



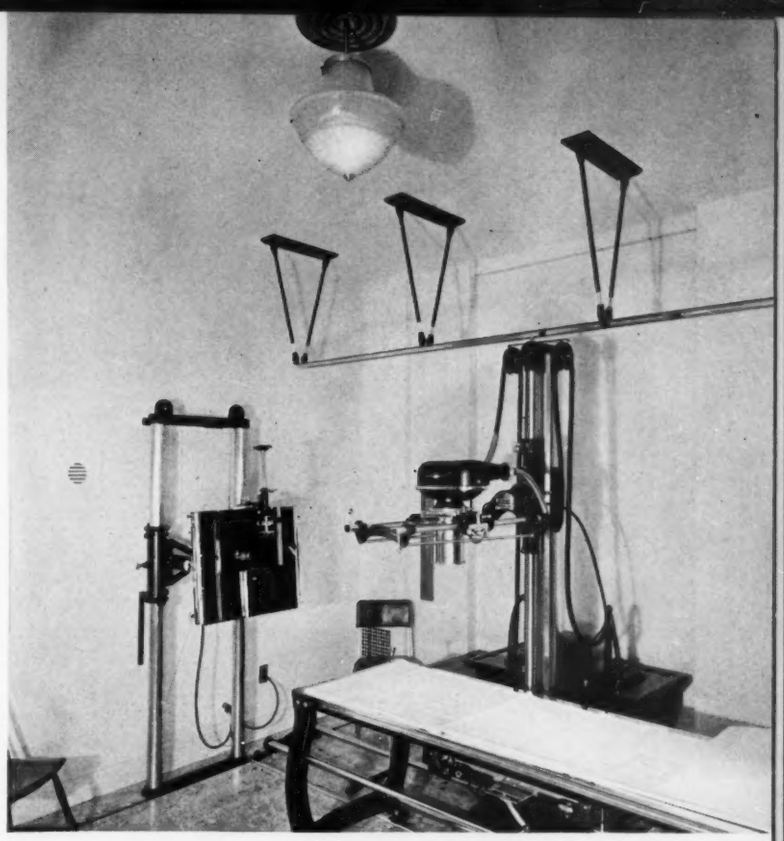
The burner is especially designed to fit the unit. The unit is finished in blue Hammerloid baked enamel on 22 gauge auto body steel and trimmed with chromium handles.

NEW WASHABLE, INTERIOR, RESIN-BASE PAINT

Resinall is the trade name of a washable interior paint with synthetic resin binder recently introduced by the National Chemical & Mfg. Co., 3617 South May St., Chicago.

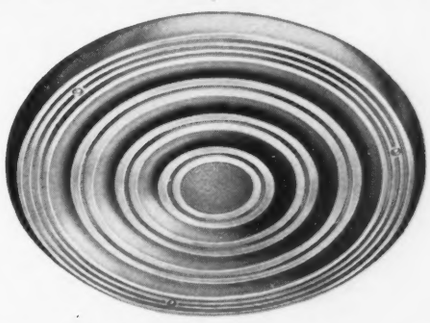
The chief feature of Resinall is combining thorough washability with water-thinned paint characteristics including one-coat coverage on most surfaces, 40-minute drying, and application with a wide brush.

Resinall comes in paste form and a gallon thins to approximately one and one-half gallons of paint of brushing consistency. On smooth finish plaster a paste gallon thinned covers approximately 500 sq. ft.; on painted surfaces 700 sq. ft. per gallon. It is recommended as safe when applied over damp, porous surfaces and on hot plaster. It is made white and eight colors including sunlight yellow, powder blue, mist gray and sea green.

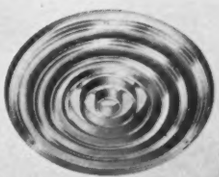


AEROFUSE OUTLET

IS EASILY COMBINED WITH ANY TYPE LIGHTING FIXTURE



Notice the air of quiet efficiency about the Ex-Ray Room above. The Aerofuse Outlet has been easily combined with the special lighting fixture demanded. Just as easily — just as naturally it lends itself to combination with almost any type of fixture and becomes an unobtrusive part of the decorative plan. But functional superiority is the great reason for the fast growing popularity of the Aerofuse Outlet. Efficiently it provides, (1) Maximum Air Mixture, (2) Rapid Temperature Equalization, (3) Perfect Air Distribution, (4) Total Elimination of Drafts.



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A SUPPLY AND RETURN UNIT

Valuable in installations where simplification of the duct layout is of primary importance. Supply and return (exhaust) ducts can be run to the same point.

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President of United Cigar-Whelan Stores Corp.
R. A. Fash, Architect

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